

Lewiston Fire Department

Fire Station Analysis

Lewiston, Idaho

April 30, 2020



LONGWELL + TRAPP
ARCHITECTS



ARCHITECTURE + PLANNING + DESIGN



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Table of Contents

Statement of Purpose

Executive Summary

Lewiston Fire Department Overview

Existing Conditions

Fire Station 1

Fire Station 2

Fire Station 4

Administration Building

Station Location Analysis

Introduction

Establish Baseline Performance

Project Future Need

Model Alternative Station Location Scenarios

Recommendations

Appendix A – Current Travel Time Mapping by Station

Lewiston Fire Department – Statement of Purpose

Study Objectives:

1. Review current fire stations to verify that stations meet performance goals with current demand.
2. Evaluate current fire station locations and map current standard compliance.
3. Determine if the locations are adequate and provide alternative station locations if required.
4. Review current and future needs related to projected community growth.
5. Provide response time mapping for 3 current city stations.
6. Examine the conditions of the current stations related to station efficiency and functionality.
7. Review need to incorporate satellite police services in an East Orchards Fire Station.
8. Review the need for a training facility in the City of Lewiston.
9. Include Idaho Survey and Rating Bureau requirements, NFPA requirements and any fire service best practices regarding deployment of resources.

For the objectives noted above we will make recommendations and risk assessments to the City of Lewiston to guide future planning for the Fire Department.

Executive Summary

GENERAL

The following is an overview of the detailed documentation and analysis found within the report. These findings offer information to support future decision making relative to future deployment, optimized coverage based on a three-station model, and capital facility planning to support the Lewiston community.

FACILITY CONDITIONS

Four facilities consisting of Fire Station 1, Fire Station 2, Fire Station 4, and the Fire Administration Building were identified and assessed as part of this study effort. The physical condition of each facility coupled with the ability to support current and future operational needs were identified and documented. Key areas of review included:

1. Site Assessment
2. Exterior / Envelope Conditions
3. Programming/Space Plan
4. Codes and Standards
5. Systems

KEY FINDINGS BY FACILITY:

FIRE STATION 1

- While areas of the station have been renovated in an incremental make-due fashion over time, the facility is consistent with what would be expected in a 56-year-old fire station. Overall, the station is in fair to poor condition and lacks many of the systems and features would be found in a modern-day fire facility.
- Due to the current condition, lack of area to accommodate operational needs, and overall age, this facility should be considered for replacement.
- The response model suggests facility replacement should occur in an alternative location.
- If this facility is replaced the existing building could be repurposed for additional administration offices, training, reserve vehicle storage and/or vehicle maintenance.

FIRE ADMINISTRATION BUILDING

- This facility is generally in good condition, space is tight in some areas, lacks space for storage and a conference room. The facility has ADA accessibility issues and no room for additional staff.

- Since it is command and control for the department, the station should be equipped with an emergency generator.
- As decisions are made relative to the future location of station 1, this facility should be considered for future expansion or relocation.

FIRE STATION 2 (and Annex)

- This 27-year-old station was found to be the newest of facilities evaluated. Though the facility is generally in good condition the station has several code deficiencies, does not adequately support current programmatic needs and is not conducive to a healthy environment as it relates to cross contamination issues.
- Given the available site area and potential need to add a police substation in the general vicinity, an addition and interior renovation to better address operation needs should be considered at this location.

FIRE STATION 4

- This 47-year-old station was found to have substantial programmatic and code related issues and is be inadequate in size to address current operational needs.
- Given the extent of renovation that would be required, it will be more cost effective to replace the existing facility.
- The response model suggests facility replacement should occur in an alternative location.

TRAINING FACILITY

- Currently the City does not have any fire training facility. Manipulative training occurs on donated houses, found locations, and occasionally by traveling to Coeur d'Alene or Spokane which is costly and extremely remote for the City's service area.
- The City should evaluate if a shared training facility were located within the City if the ISO rating would move from a low 3 to a 2
- A possible regional partner with potential land was suggested to be Lewis and Clark State College near the new Technical School.

GROWTH AND RESPONSE

Based on the response modeling as part of this study, it is recommended that two of the current stations be replaced in an alternative location:

- **Station 1:** General vicinity of 21st St between 7th and 8th Ave. (no farther east than 21st St)
- **Station 4:** General vicinity of Bryden Ave and 4th Street and 5th Street.

IMPLEMENTATION TIMELINE

The following recommended timeline identifies near-term and long-term implementation horizons based on current and anticipated need as a result of both population growth and aging facilities. As the timeline extends past the mid-term, this study suggests that the target replacement timeline of Station 1 be re-evaluated based on actual growth and call load and project implementation adjusted accordingly.

- **Near Term: 2-5+ Years:**
 - Station 4 Replacement New Site
 - Training Facility Land Acquisition and Joint Facility discussions with Lewis and Clark State College
- **Mid-term: 8-10+ Years:**
 - Station 2 Renovation and Addition to the Existing Site
- **Long-term: 15+ Years:**
 - Target Station 1 Site Purchase (near term- next 3-5 years)
 - Station 1 Replacement New Site
 - Existing Station 1 - Administration Building Expansion or use for alternative city function

Lewiston Fire Department – Overview

The following is an overview of the existing Lewiston Fire Department provided to our team by your Fire Chief. This document contained very pertinent information that was valuable as background information for our study.



LEWISTON FIRE DEPARTMENT OVERVIEW

ORGANIZATION. The department has 56 full-time and 12 part-time employees. Full-time personnel are divided into five divisions: Administration (fire chief, deputy fire chief, division chief of training & safety and 2 administrative secretaries), Suppression (3 battalion chiefs and 21 firefighters), Emergency Medical Services (18 firefighters), Prevention (division chief and 2 inspectors) and Reserve (12 part-time firefighters). There are 16 personnel on duty 24 hours each day serving the public from 4 fire stations; 3 in Lewiston and the Asotin County Fire District #1 station: Station 1 (1 battalion chief, 1 captain, and 4 firefighters) serves downtown, North Lewiston and East Lewiston; Station 2 (1 captain and 4 firefighters) serves the East Orchards; Station 4 (1 captain and 2 firefighters) serves the airport area, West Orchards and Elks area; and the AC Station (2 firefighters) serves Asotin, Asotin County, Elks Addition, Hells Gate area and parts of downtown Lewiston. The three battalion chiefs have their office in the fire administration building.

MISSION. We will respond to each call with courage, conviction and compassion.

CORE VALUES. Value our people; Do the right thing; Lead by example; Give people the benefit of the doubt; Be accountable to yourself and others; Have pride in your job; Look for the positive; Show respect

CROSS-TRAINED AND CROSS-STAFFED. Firefighters are cross-trained to meet the various department missions; all department vehicles are cross-staffed. The on-duty crew takes the vehicles and tools it needs to perform the mission. Suppression and EMS Division duties include fire suppression; emergency and nonemergency ambulance service; aircraft rescue firefighting (ARFF) at the airport; hazardous materials response; rescue and extrication; disaster response; and public education. LFD is a multi-dimension, multi-function organization. By training and equipping the same personnel to perform numerous missions, the City receives greater return on its investment in personnel. All firefighters are certified EMS providers; all Paramedics and EMTs are firefighters.

Reserve Firefighters are part-time employees who fill in for full-time personnel absent for vacation, illness, injury, training, union business, jury duty, subpoena leave, leaves of absence less than 60 days, public education, awaiting new hires, and special assignments as agreed by both parties of the Collective Labor Agreement. Their activity is limited to either firefighter or ambulance attendant positions. Utilizing Reserve Firefighters greatly reduces overtime costs.

OPERATIONAL CONCEPT. Firefighters operate in teams carrying the tools and equipment needed to perform the various missions on board self-contained fire engines, ambulances and support vehicles. Firefighters function as risk managers; moving people, tools and equipment around to complete the multiple missions of the department.

AMBULANCE SERVICE. LFD has provided emergency and nonemergency ambulance service to Lewiston since 1961, and now by contract to Asotin, Asotin County, Colton, Nez Perce County, Uniontown and the southeastern part of Whitman County.

Effective January 1, 2010 our only response in Clarkston is for out-of-area transfers and trauma verified calls. Out-of-area transfers are a matter of patient choice and are not governed by Clarkston's ordinance establishing their ambulance service as the exclusive provider for the City of Clarkston.

Presently, counting the Reserve force, the department has 33 Paramedics, 5 Advanced EMTs and 25 EMTs. Of the 25 EMTs, 14 are specially trained to start IVs IOs and supra glottis airways. A council-appointed Emergency Medical Services Advisory Board (EMSAB), created by ordinance, makes recommendations to the council on medical service issues relating to rules and standards. For FY19 the department collected \$2.6 million in revenue on approximately \$3.4 million in billed services.

CALL VOLUME. Regardless of the number of vehicles responding to an incident, a "call" is defined as a single response to an address for assistance. We don't multiply the number of vehicles times the response to ascertain our call volume. In Fiscal Year 2019 the department responded to 6,845 EMS calls, 519 fire responses and 3 hazardous materials response, totaling 7,367 responses.

FIRE PREVENTION. The Prevention Division provides for the life safety of the public, as well as the firefighters, through the application and enforcement of the International Fire Code. The International Fire Code fits into an entire *family of codes* intended to work as a cohesive unit. It is designed and written as a *minimum code* for the protection of life and property from fire and explosion. Prevention conducts plan reviews and new and remodel construction inspections under the 2015 International Fire Code (IFC); conducts fire cause and arson investigations; conducts business license inspections; issues blasting permits and monitors blasting sites; determines needed fire flow and fire apparatus access requirements per IFC; operates the Juvenile Firesetter Counseling Program; enforces the IFC on commercial use of hazardous materials and processes; and provides operational support to other divisions.

New construction, additions or remodels, as well as changes in occupancy or process, is subject to the City's review process. There are several City entities involved at this level however, only the Fire Department has maintenance responsibility over the life of the subject property.

The IFC is adopted into law by the State Fire Marshal through the authority granted by state statute (Idaho Code 41-253) as a minimum standard for the State of Idaho. Conversely, cities and counties must take specific action to adopt the International Building Code in their jurisdictions to apply and enforce its requirements. The Fire Marshal and Fire Inspectors are considered assistants to the State Fire Marshal in carrying out the provisions of the IFC (Idaho Code 41-256). This code has been constructed through a process of public hearings and debate with all interested parties, weighing the political, social and economic considerations against the technical and legal requirements found within. Changes made to it on a local level must be more restrictive, not less restrictive, per State law. The City of Lewiston has adopted less restrictive amendments in opposition to this direction; therefore, the City has chosen to assume that liability. The Prevention Division makes every effort to enforce the fire code uniformly, consistently and above all, in a fair and unbiased manner.

The City Code Board of Appeals may review Fire Department interpretations of the IFC but does not have authority to waive the code.

FIRE LOSS. Fire loss in FY19 was \$1,008,320.

HAZARDOUS MATERIALS RESPONSE. LFD is the lead agency in the public-private partnership providing Level A hazardous materials emergency response to a five-county area: Clearwater, Idaho, Latah, Lewis and Nez Perce. The State funded the North Central Emergency Response Team (ERT) with \$97,000 in 1994 for three vehicles and equipment. Training and equipment for the team are provided through the State. The State is the lead agency in cost recovery for emergency response. The City has ERT response contracts with Washington State University and the City of Pullman.

MUTUAL AID. LFD has mutual aid agreements with Asotin, Clarkston, Moscow and Pullman Fire Departments, Asotin County Fire District #1, Moscow Rural Fire District, Wheatland Fire Protection District and Whitman County Fire District #14. Beginning in May of 2017 the department established an automatic aid agreement for structure fires with Asotin County Fire District #1, Clarkston Fire Department and Wheatland Fire Protection District. The department also has an emergency services agreement with Clearwater Paper Corporation and Medcor. We work closely with city, county and state law enforcement agencies in Idaho and Washington.

VEHICLES. LFD operates 7 ambulances; 5 engines; a 100-foot aerial; a rescue/extrication truck; 2 4WD grass-firefighting vehicles; a utility vehicle; an aircraft/rescue/firefighting vehicle; 30-patient Mass Casualty trailer; public education trailer; 2 state-owned hazardous materials trucks and 4 trailers; 2 pick-ups and 4 SUVs.

UNION. Battalion Chiefs, Captains, Engineers, Firefighters, Fire Inspectors and Reserve Firefighters are represented by the International Association of Firefighters Local 1773. They are affiliated with the AFL-CIO and work under a Collective Labor Agreement that is negotiated to address wages, benefits, working conditions, and all other terms and conditions of employment as provided by state law.

BUDGET. The FY20 budget, out of the General Fund, is \$9,031,020. Personnel cost is approximately 86% of the budget.

PROGRAMS. Department programs include Fire and Life Safety Education, Community Smoke Alarm Program, Juvenile Firesetter Counseling, Fire Prevention Week, EMS Week, Internal Quality Improvement, Ice and Cold Water Rescue, External Physician Quality Assurance Program, Blood Pressure Monitoring, Emergency Medical Dispatch (EMD), Emergency Medical Information Cards and Know When to Call 911 Campaign.

CLASS 3. Idaho Surveying and Rating Bureau has listed Lewiston as a Class 3 fire protection city.

THE FUTURE. Continue to replace aged apparatus and equipment, allowing emergency responders to have adequate tools to help provide excellent medical care and safely suppress fires.

The department has been working over the past couple years to develop a plan to replace the 45 year old fire station currently located at 424 Burrell Ave. In June of 2017 the city purchased a little over an acre of land located on the northwest corner of 5th Street and Bryden Ave. This site will become the new location for Station 4. When funding is secured it is our desire to begin construction in 2022 and occupy the station in early 2023. The new location will improve emergency response times to numerous areas of the community that are currently under served according to NFPA 1710 standards.

We will continue to address future staffing needs of the department as our community expands and call volume increases. Staff will review current and future deployment models, response statistics, community risk analysis and facility needs for the future. This process will involve the city council, city manager, fire department staff and community members. The input we receive will help us address citizen's expectations from their fire department.

SUMMARY. The Lewiston Fire Department considers itself a premier fire department. We provide a large number of services that are not found in many communities. With cross-trained personnel and cross-staffed apparatus responding to emergency and nonemergency requests, we are able to impact the lives of those calling for help almost immediately. The members of the Lewiston Fire Department recognize that our customers' first impression may very well be their lasting impression; compassion and professionalism are the essential elements we exercise with every customer contact.

Lewiston Fire Department - Existing Conditions

The following is an assessment of the existing conditions for the Lewiston Fire Department Facilities. Conditions reviewed include:

1. Site
2. Exterior/Envelope
3. Interior
4. Program/Space Planning
5. Operations
6. Codes and Standards
7. Structural
8. Mechanical/Plumbing
9. Fire Suppression
10. Electrical/IT/Alerting

FIRE STATION 1

300 13th Street, Lewiston, Idaho 83501

Built 1964

General

Facility Size	Main Floor 7,762 sf, Basement 1,173 sf
Bays	4 double depth bays, 2 are drive thru
Current Staffing	6
Current Apparatus	Engine (3), Medic (2), Battalion Chief (1), Brush Truck, Rescue Truck, Ladder Truck, Reserve Medic, Reserve Medic <ul style="list-style-type: none"> Ideally the Battalion Chief would be located more centrally in the Departments coverage area, however current facilities cannot accommodate this objective.
Future Staffing	0
Future Apparatus	None

Fire Station 1 is an 8,935 square foot building with a partial basement, sited adjacent to the Fire Department Headquarters. Emergency response is on 13th Street, and the drive through apparatus bays (2 of the 4) are accessed from G Street. Parking is provided behind the station and off of G Street. The property is a corner lot surrounded primarily by commercial use buildings.

ASSESSMENT

Site

Fire Station 1 has a front concrete apron and an “L” shaped asphalt cement paved (ACP) parking area on the north and west side of the station with a mix of visitor and employee parking (8 stalls). Unmarked parallel parking is used on the back side of the bays. The surfacing is in fair condition, however it was noted that the pavement is poor condition in several areas. Unenclosed dumpsters are in the west parking area. No on-site surface water conveyance was observed.

There is one non-compliant ADA designated accessible parking space located in NE corner of the parking lot but does not have code compliant access to the sidewalk. Sidewalks serving the station are in good condition.

There are a couple on-site storage sheds which have been added due to the lack of available storage in the station.

The site is not secure, and it was noted that crime has become an increasing challenge at this location. Security fencing around the station with gates would help address this issue.

The site is well maintained by the Fire Department.

Exterior/Envelope

The concrete masonry unit exterior envelope is in fair condition. There are flat roofs on the facility with rooftop mechanical penetration with no observed fall protection.

Interior

The existing materials and finishes generally exhibit signs of wear throughout. The station appears to have undergone numerous minor renovations over the years which has resulted in inconsistent residential quality materials in several areas. The following materials were noted in the station:

- Concrete apparatus bay slab- inadequate drainage for today's standards and non-structural cracking was observed throughout the station where slabs were exposed.
- VCT flooring select areas (fair condition) - joints in flooring material are difficult to maintain.
- Ceramic tile in kitchen area is in good condition however the grout joints appear difficult to maintain.
- Roll carpet (poor condition) - in Day Room and some sleeping areas of the station and has clear cross-contamination and cleaning issues.
- Roll carpet (good condition) – Training Room
- Rubber base
- Gypsum wallboard and concrete masonry unit walls (damaged in areas –especially corners)
- A variety of painted wood and metal doors (no kick plates in areas, paint is damaged)- fire ratings do not meet code.
- Cabinetry and countertops show wear throughout (heavy in areas)
- Lay-in acoustical ceiling tiles, gypsum wallboard, and wood ceilings

Programming/Space Planning

Crew living and working areas flank the apparatus bay to the north and south. The unsecured public lobby is located on the north side with no internal point of security. A multi-training room is accessible from the lobby.

Generally sleeping rooms, restrooms and the kitchen and dayroom are located on the south side and are inadequate to today's standards. Lack of doors and dorm like sleeping rooms are both a privacy and health issue relative to sleep deprivation, alerting controls, and the transfer of infectious disease. The exercise room, located in the basement, is not ADA accessible and appears to be found space. The ceiling is low for today's needs. Storage is inadequate throughout the station.

Shop & SCBA storage located in an alcove off the apparatus bay. Medical gas storage, turnout gear storage, and hose storage functions are located at the perimeter of the bay. This found storage is impacting clearance around apparatus. Additional mezzanine storage is accessed apparatus bay.

Operations:

Turnout time throughout the station is reasonable mainly due the station being small relative to modern facilities.

Cross-contamination is a problem throughout the station. This is a result of inadequate mechanical systems and inadequate air-pressure differentials, modern decontamination and cleaning areas, lack of hand and boot wash areas, and clear transition zones between "clean" living areas, and "dirty" (higher degree of potential contaminates) apparatus, and support spaces. Station materials and finishes in the station do not support cross contamination mitigation.

Gender Neutrality- the facility has limited options to accommodate mixed genders however at this time, given staffing this has not been a significant issue. We anticipate that will change over time.

Bulk EMS storage is located in the basement due to lack of storage adjacent to the bay.

Bay lengths and widths do not accommodate industry standard clearances around apparatus.

Codes & Standards:

Fire ratings- separation between the sleeping areas and the apparatus bay do not meet code

Fire suppression- the facility does not have a fire suppression system

ADA- does not meet requirements throughout the station: restroom accommodations, door access, program accommodations, signage, counter heights, etc.

Turnout storage- storage located in the apparatus bay and does not meet the best practices on a modern station

Decontamination/cleaning- the limited facilities observed are not enclosed and segregated from the bays

Medical gas storage- exceeds fire code limits based on quantity being stored. Medical gas tanks are required to be stored in one-hour fire resistive in vented designated areas.

Structural

The building is a single-story masonry building and is generally rectangular in plan. There are four apparatus bays. The exterior walls are constructed of concrete masonry units. The roof framing consists of sheathing supported by heavy timber. The floor is a concrete slab-on-grade. The basement consists of concrete bearing walls and a cast concrete deck.

The lateral-force-resisting system should be examined to determine the necessity of a seismic upgrade.

Mechanical/Plumbing

The office/sleeping/dayroom areas are served by a ducted air system. The sleeping rooms have no individual control.

The apparatus bay is heated with gas-fired overhead radiant heaters. The heaters appear to be in good condition.

There is no general bay exhaust for the apparatus room, however the bay does have a Magna-grip source capture exhaust extraction system. The fan only runs as needed automatically when engines are on and the bay doors are in process of opening. When the vehicle exits the bay, the flexible exhaust duct automatically detaches from the vehicle.

The station includes a cleaning and decontamination sink located in the apparatus bay.

Fixtures though out the station generally appear to be in good condition

Fire Suppression

Any renovation to this facility should incorporate a commercial grade fire suppression system.

Electrical/IT/Alerting

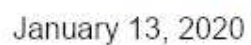
The facility does not include a modern integrated and segregated alerting system

The size of the service appears adequate for the buildings electrical needs a significant renovation will most likely demand a service replacement.

Lighting in and around the building is utilitarian except areas which have been renovated. The lighting generally outdated and with high glare. The lighting at exterior is not designed for exterior functions to take place as the lighting appears to be quite minimal.

Building interior lighting controls only consists of local switches, which does not comply with current energy conservation codes in the public areas.

The building has a cloud-based server. The building lacks building security for access control, intrusion detection and camera surveillance.



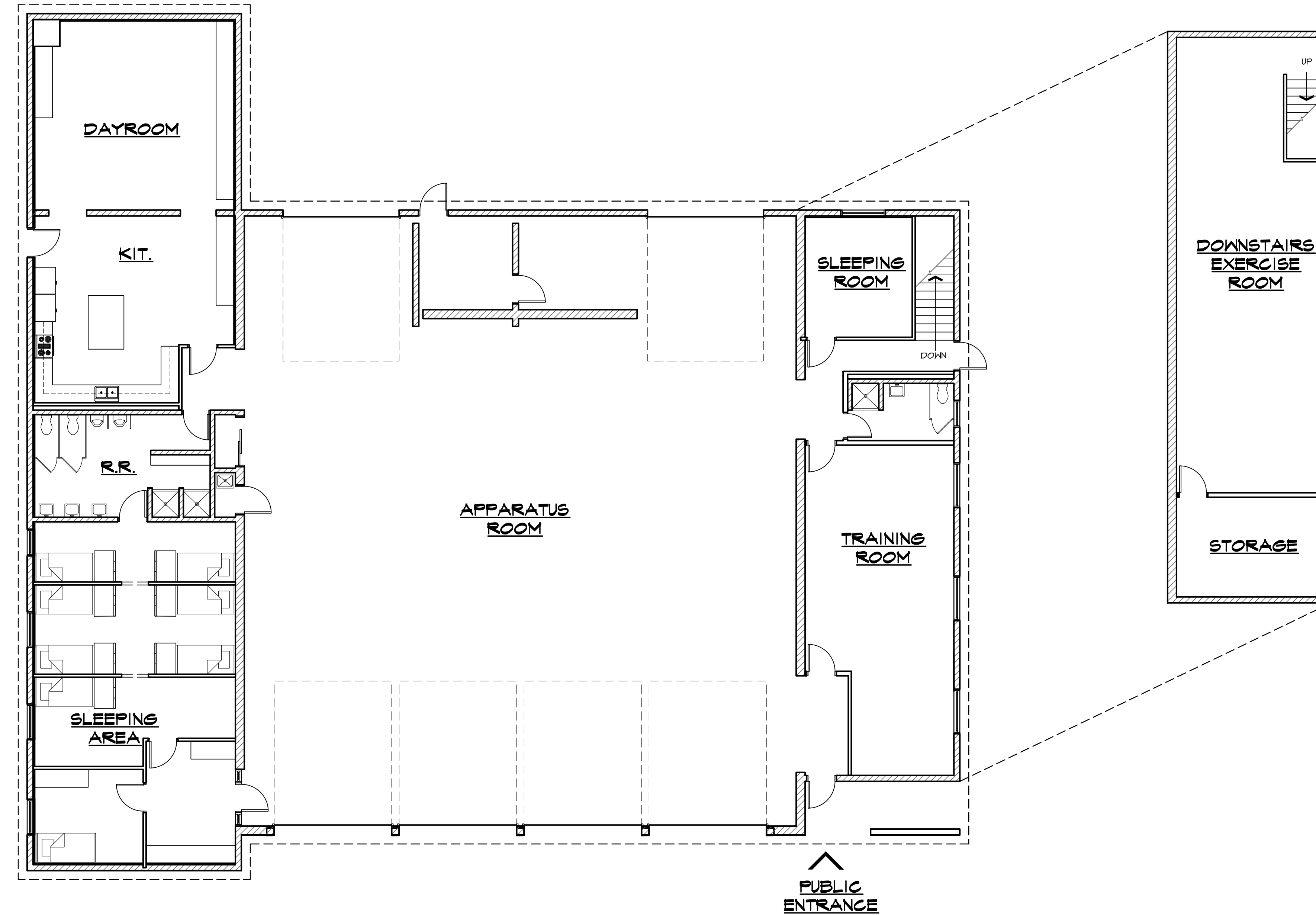
A number line with two scales. The top scale is labeled in miles (mi) with major tick marks at 0, 0.01, 0.01, and 0.03. The bottom scale is labeled in kilometers (km) with major tick marks at 0, 0.01, 0.02, and 0.04. The scales are aligned such that 0.01 miles corresponds to 0.01 kilometers, and 0.03 miles corresponds to 0.04 kilometers.

Nez Perce County GIS Services

Page 15

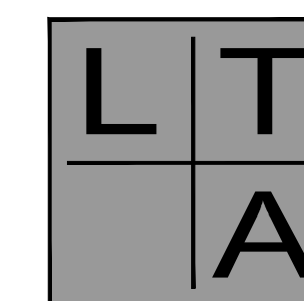
FIRE STATION

ONE



FIRE STATION 'I' AS-BUILT: FLOOR PLAN

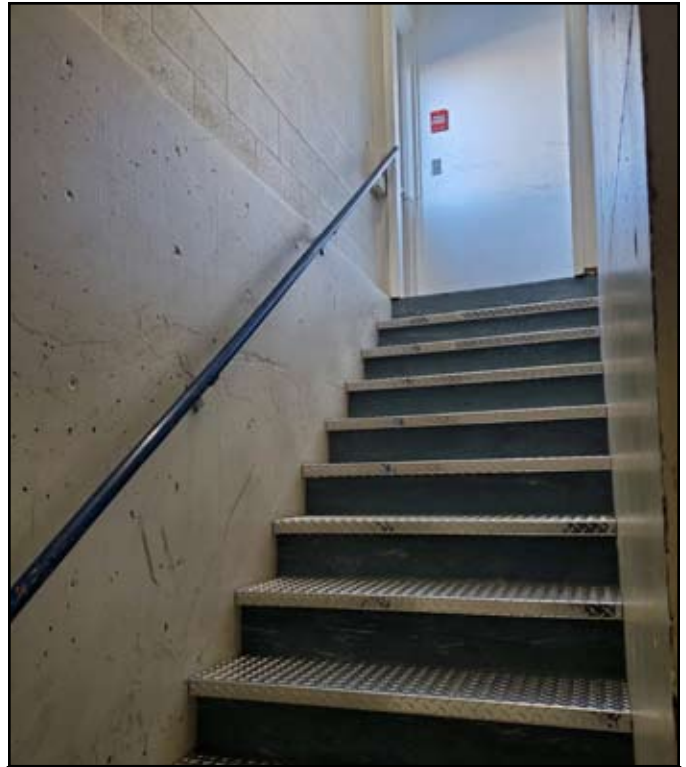
SCALE: 1/8" = 1'-0"



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STATION 1: RESTROOM



STATION 1: STAIRS TO BASEMENT

Diamond plate on stairs to make durable for training.
Using for training as other options not available.



STATION 1: AIR WORK ROOM



STATION 1: APPARATUS BAY

Floors do not drain properly.
Vehicle exhaust shown.



STATION 1: APPARATUS BAY

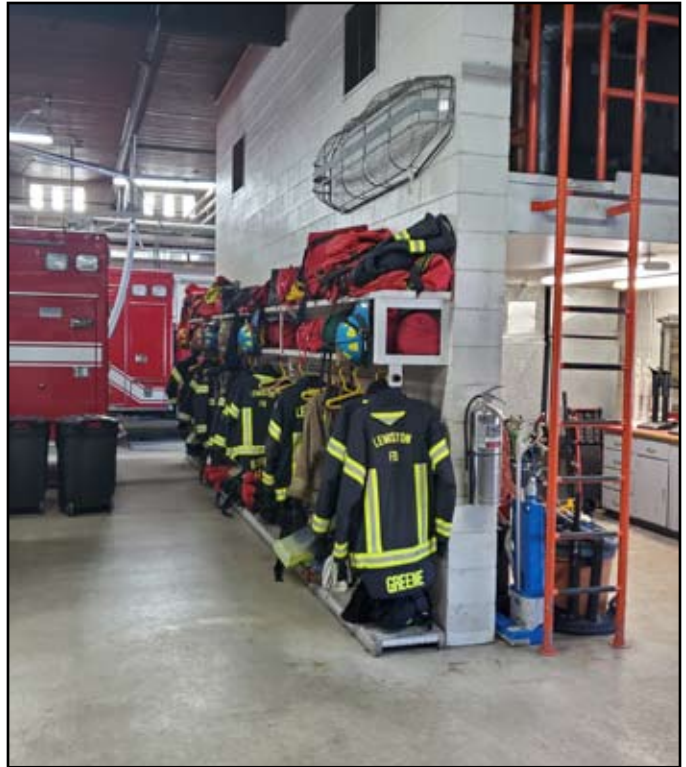


STATION 1: APPARATUS BAY



STATION 1: APPARATUS BAY

Turn outs stored in apparatus bay. Extra gear stored in apparatus bay due to lack of storage.



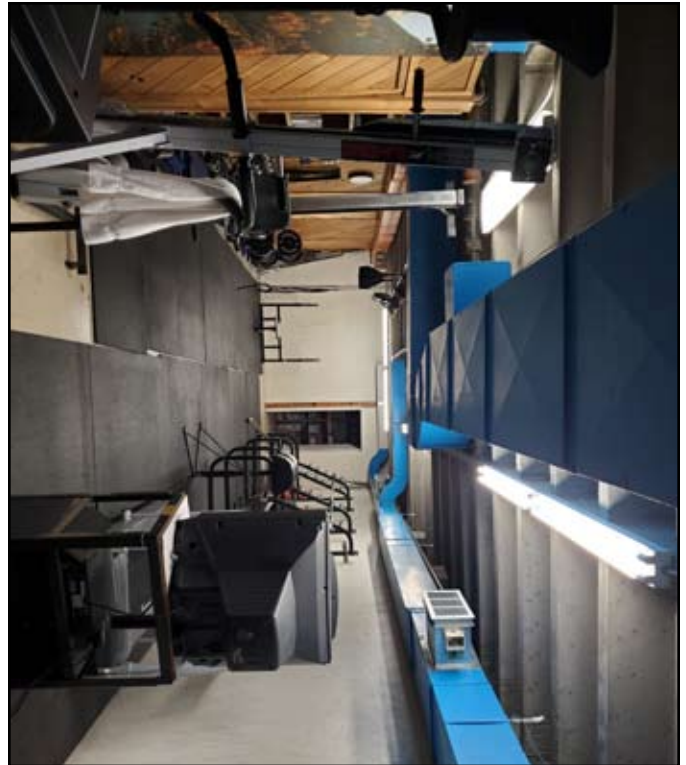
STATION 1: APPARATUS BAY

Turn outs stored in apparatus bay. Extra gear stored in apparatus bay due to lack of storage.



STATION 1: APPARATUS BAY

Electrical and additional air bottles in apparatus bay.



STATION 1: BASEMENT EXERCISE ROOM

Low ceiling and door ventilation for an exercise room.



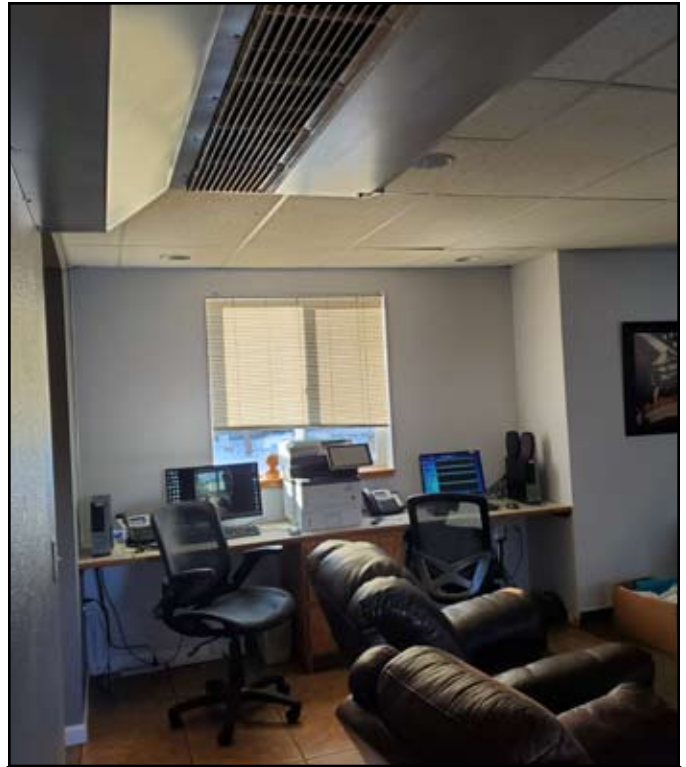
STATION 1: BASEMENT STORAGE



STATION 1: CAPTAIN SLEEPING ROOM



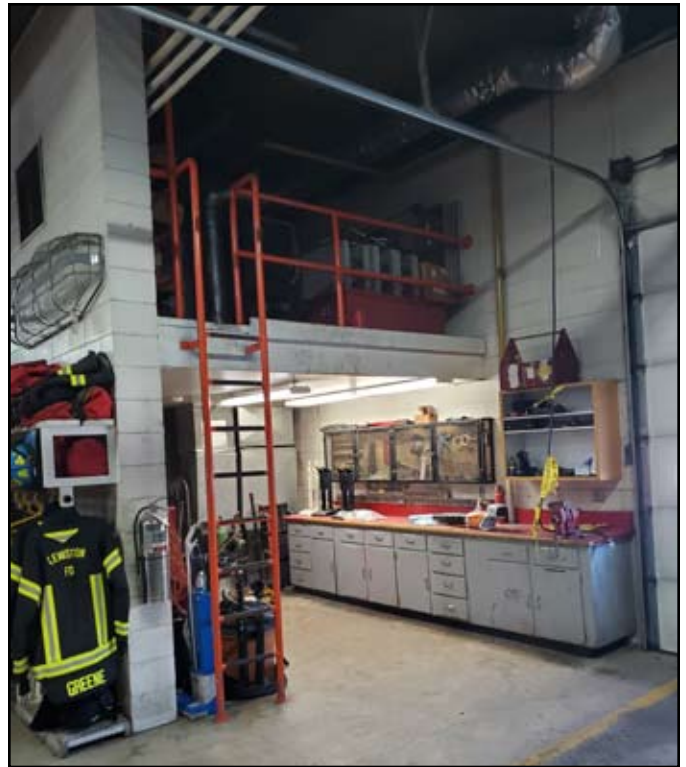
STATION 1: DAYROOM



STATION 1: DAYROOM



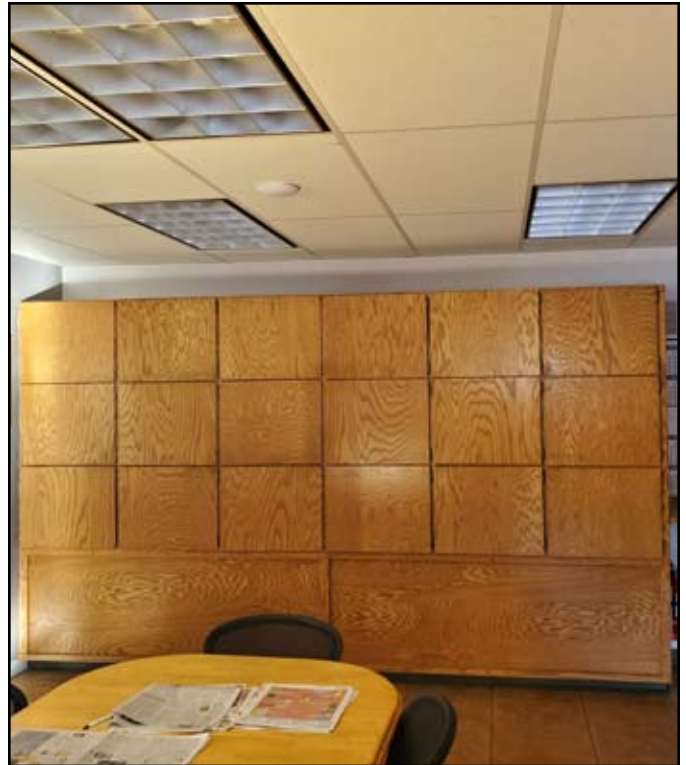
STATION 1: DECON
Alcove in apparatus bay.



STATION 1: WORK / MECH. PLATFORM



STATION 1: ENT. TO SLEEPING ROOMS
No fire rated separations to sleeping areas.



STATION 1: KITCHEN STORAGE



STATION 1: KITCHEN



STATION 1: STAFF OFFICE AREA



STATION 1: TRAINING ROOM



STATION 1: RESTROOM
Very dated. No ADA access.



STATION 1: RESTROOM



STATION 1: SHOWERS



STATION 1: SLEEPING ROOM

Little privacy or seperation. Very small spaces.



STATION 1: SLEEPING STORAGE



STATION 1: SLEEPING ROOM



STATION 1: SLEEPING ROOMS

Little privacy or seperation. Very limited storage.



STATION 1: STAFF ENTRANCE
Dangerous slopes, doors don't meet ADA.



STATION 1: NORTH EAST CORNER
Public entrance. No parking for the public.



STATION 1: WEST SIDE



STATION 1: NORTH SIDE
Staff parking.



STATION 1: WEST SIDE DAY ROOM ADD.
Small storage building due to lack of storage in building.



STATION 1: EAST SIDE
Apparatus Apron is short. Public entrance.

FIRE STATION 2

1533 Grelle Ave Lewiston, Idaho 83501

Built 1993

General

Facility Size	Main Station 5,000 sf, Annex Building 1 100 sf
Bays	2 double depth bays (plus a 3 bay Annex building)
Current Staffing	5
Current Apparatus	Main Station: Engine (3), Medic (2), Reserve Medic, Brush Truck Annex: Reserve Engine, Hazmat Truck
Future Staffing	1 for an Engine
Future Apparatus	None

Fire Station 2 is a 5,000 square foot building with a detached annex building of 1,000 sf.

Annex Building: Used to store a Hazmat Truck, reserve engine, hose storage, miscellaneous support equipment, and a physical fitness area. The Annex is accessed off 15th Street.

Station 2: Emergency response is on Grelle Avenue via non-drive through bays. Parking is provided adjacent to the station and is accessed off 15th street. Parking is limited and does not accommodate shift change, however area around the station is available for parking. The property is a corner lot surrounded primarily by residential structures.

ASSESSMENT

Site

Fire Station 2 has a front concrete apron on the south side of the station and asphalt cement paved (ACP) parking area on the east side of the station with a mix of visitor and employee parking (6 striped stalls). Unmarked paved areas are additionally used for parking. Trash cans are used at the station and vs dumpsters. There appears to be a drywell on the south front yard of the station. T

There is an ADA designated accessible parking stall located in parking lot but the grades appear to be great than 2%, thus making it non-compliant. Sidewalks serving the station are in good condition.

The site is not secure, and it was noted that crime around the station is less than that at Station 1. There is no security fencing around the station.

The site is well maintained by the Fire Department.

Exterior/Envelope

The concrete masonry unit exterior envelope is in good condition. There are pitched roofs on both facilities with rooftop mechanical penetrations. No observed fall protection.

Interior Station 2

The existing materials and finishes generally exhibit moderate signs of wear throughout. The station appears to have undergone a few minor renovations over the years to try and accommodate more sleeping areas, and turnout cleaning areas in the living areas which is problematic from a cross-contamination perspective. Living area materials, finishes, and appliances are residential in nature. The following materials were noted in the station:

- Concrete apparatus bay slab- inadequate drainage for today's standards.
- LVT and VCT flooring select areas was recently replaced (good condition) - joints in flooring material can be difficult to maintain.
- Ceramic tile in restrooms, floors and wainscot are in fair condition however the grout joints appear difficult to maintain. Ceramic tile appears to be original to the building.
- Rubber base in good condition throughout.
- Gypsum wallboard and concrete masonry unit walls
- A variety of painted wood and metal doors (no kick plates in areas, paint is damaged) - fire ratings do not meet code.
- Cabinetry and countertops show some wear. Countertops are finished with plastic laminate.
- Lay-in acoustical ceiling tiles, gypsum wallboard.

Programming/Space Planning

Crew living and working areas on the east side of the apparatus bays. The unsecured public lobby has a south entrance with no internal point of security.

Generally sleeping rooms and restrooms are inadequate to today's standards. Cross-contamination within the station is a concern because the extractor and chemical dispensing system is in the laundry room due to lack of space. Lack of doors and dorm like sleeping rooms are both a privacy and health issue relative to sleep deprivation, alerting controls, and the transfer of infectious disease. Overall, the department does not have enough adequate sleeping rooms nor locker space to support staff adequately. The Department provides linens and bedding for staff. The exercise room, located in the annex building due to lack of space in the station which is not only a challenge to turnout times but also the annex space houses apparatus, potentially contaminated equipment and lack an adequate ventilation system, this is found space. Storage is inadequate throughout the station.

The kitchen includes residential grade appliances, two refrigerators, which works fine for the station, and individual food lockers which are limited in number.

The Department has a culture of doing briefings at shift change in the dining area.

Shop & Decontamination areas are located in alcoves off of the apparatus bay with no clear separation between the bay areas. Turnout gear storage, and hose storage functions are located at the perimeter of the bay. This is not only best practice, but this is also impacting clearance around apparatus. This is not being done by choice but out of necessity due to lack of space. SCBA storage and medical gas storage is located in the annex building due to a lack of space in the fire station.

Operations

Turnout time throughout the station is reasonable mainly due the station being small relative to modern facilities.

Cross-contamination is a problem throughout the station. This is a result of inadequate mechanical systems (residential in nature) and inadequate air-pressure differentials, modern decontamination and cleaning areas, lack of hand and boot wash areas, and clear transition zones between “clean” living areas, and “dirty” (higher degree of potential contaminates) apparatus, and support spaces. The decontamination extractor is located in the middle of the Station in the general laundry room.

Gender Neutrality- the facility has options to accommodate mixed genders with a separate sleeping room and single user restroom available.

Bay lengths and widths do not accommodate industry standard clearances around apparatus.

Codes & Standards

Fire ratings- separation between the sleeping areas and the apparatus bay do not meet code

Fire suppression- the living area of the station has a fire suppression system but the bay does not.

ADA- does meet requirements throughout the station: restroom accommodations, door access, program accommodations, signage, counter heights, etc.. There are some minor ADA issues that need to be addressed.

Turnout storage- storage located in the apparatus bay and does not meet the best practices on a modern station

Decontamination/cleaning- the limited facilities observed are not enclosed and segregated from the bays and the extractor is in the living area.

Medical gas storage- exceeds fire code limits based on quantity being stored. Medical gas tanks are required to be stored in one-hour fire resistive in vented designated areas.

Apparatus fill is located above the apparatus, which are being removed in many jurisdictions due to potential safety issues.

A welding receptacle is located in the electrical room which is not advised.

Structural

The building is a single-story masonry and wood framed building and is generally rectangular in plan. There are two masonry apparatus bays. The exterior walls are constructed of concrete masonry units at the apparatus bay and wood framing with lap siding on the living areas of the station. Some areas in the bays appear to be uninsulated. We believed the roof is trusses throughout but that will need validation. The floor is a concrete slab-on-grade.

The lateral-force-resisting system should be examined to determine the necessity of a seismic upgrade if a renovation were to occur.

Mechanical/Plumbing

The office/sleeping/dayroom areas are served by a ducted air system. The sleeping rooms have no individual control. It is our understanding that the mechanical system is slated to be replaced.

The apparatus bay is heated with inefficient overhead unit heaters with a low upfront cost. The heaters appear to be in working order.

There is no general bay exhaust for the apparatus room, however the bay does have a Magna-grip source capture exhaust extraction system. The fan only runs as needed automatically when

engines are on and the bay doors are in process of opening. When the vehicles exit the bay, the flexible exhaust duct automatically detaches from the vehicle.

The station includes a cleaning and decontamination sink located in the apparatus bay.

Fixtures though out the station generally appear to be in good condition

Fire Suppression

Any renovation to this facility should incorporate a commercial grade fire suppression system added to the Apparatus Bay.

Electrical/IT/Alerting

The facility does not include a modern integrated and segregated alerting system

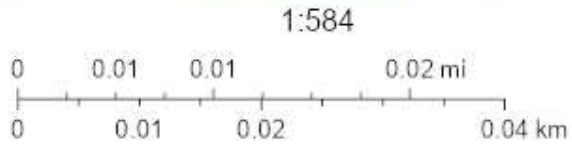
The size of the service appears adequate for the buildings electrical needs a significant renovation will most likely demand a service replacement.

The building has a generator, but is very undersized for the size of the facility and does not have enough power to operate the overhead garage doors during a power outage.

The building has a cloud-based server. The building lacks building security for access control, intrusion detection and camera surveillance.



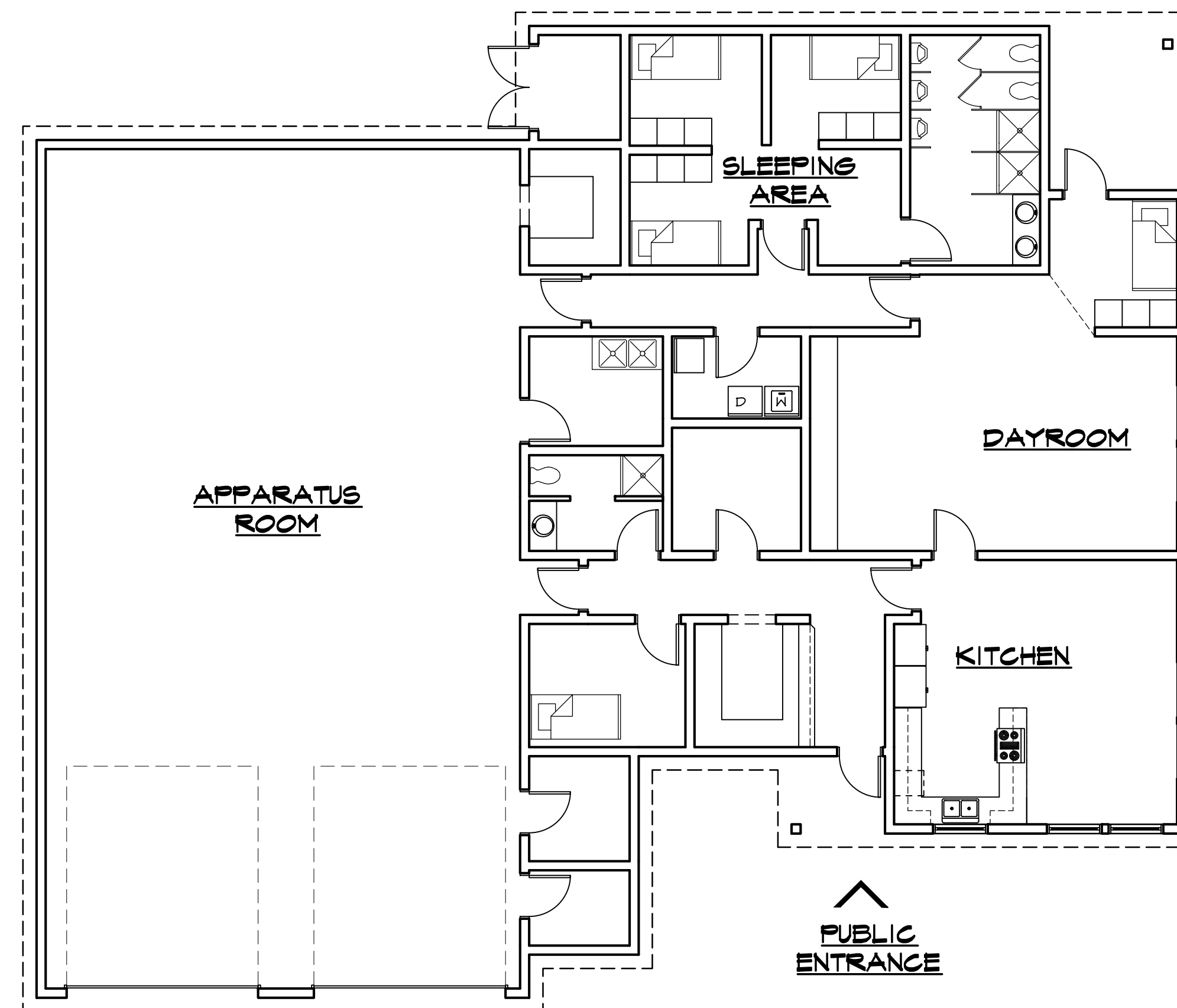
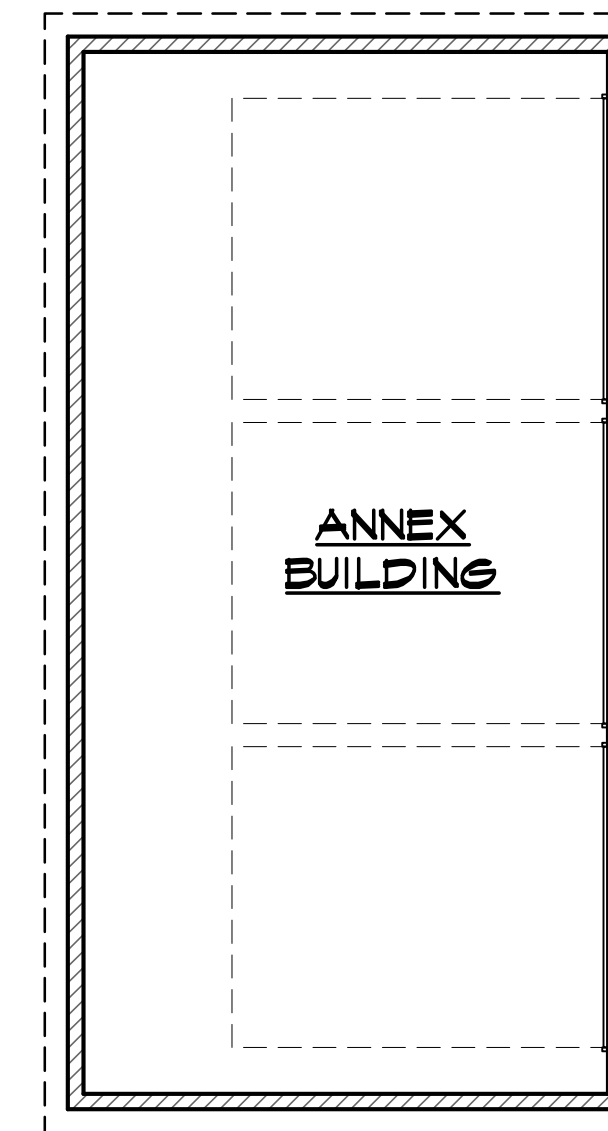
January 13, 2020



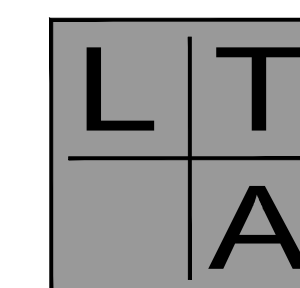
Nez Perce County GIS Services

Lewiston Fire Department Station 2

FIRE STATION TWO



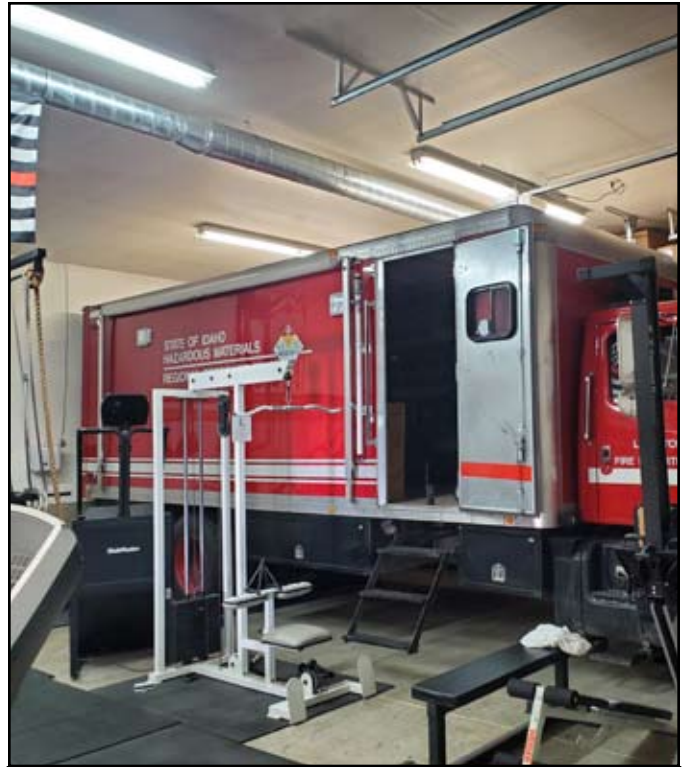
FIRE STATION '2' AS-BUILT: FLOOR PLAN
SCALE: 1/8" = 1'-0"



LONGWELL + TRAPP
ARCHITECTS
architecture planning interiors
north 8382 wayne drive, suite 204
hayden, idaho 83835
ph: 208.772.0503
email: info@longwelltrapp.com



STATION 2: ADA RESTROOM



STATION 2: ANNEX APPARATUS BAY
Exercise area in apparatus bay.



STATION 2: APPARATUS BAY
Turn out gear in apparatus bay.



STATION 2: APPARATUS BAY
Poor floor drainage. Vehicle exhaust provided.
No general exhaust.



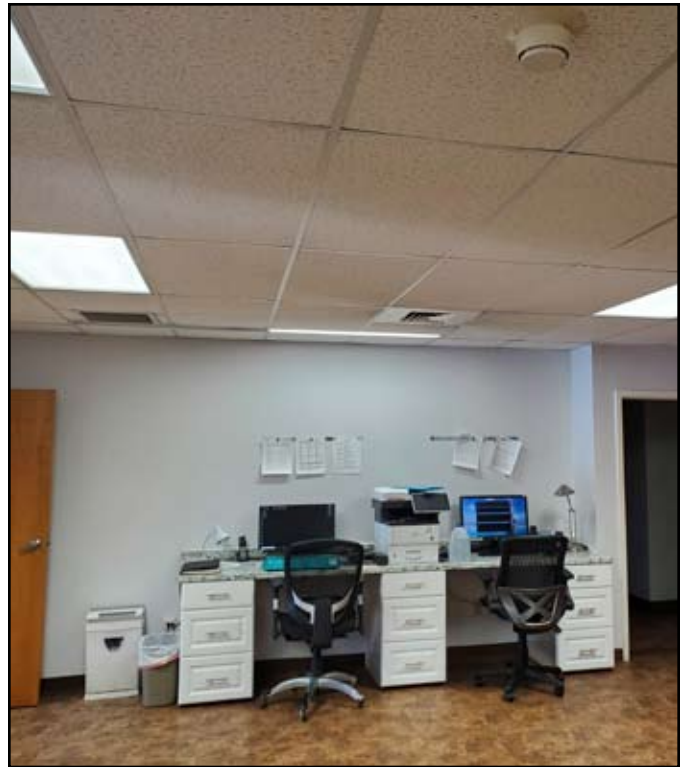
STATION 2: WORK ALCOVE OFF APPARATUS
Small, undersized work area.



STATION 2: DAY ROOM / SLEEPING AREA
Sleeping area added in corner of dayroom due to lack of space.



STATION 2: DECON



STATION 2: STAFF OFFICE / DAY ROOM



STATION 2: EXERCISE AREA / ANNEX APP. BAY



STATION 2: KITCHEN / DINING



STATION 2: DINING / KITCHEN



STATION 2: MECHANICAL ROOM



STATION 2: OFFICE / RECEPTION



STATION 2: RESTROOM



STATION 2: SLEEPING AREA

Sleeping areas small, lack of privacy, & storage.



STATION 2: ANNEX BUILDING



STATION 2: EAST SIDE PARKING
Limited staff parking.



STATION 2: SOUTH SIDE ENTRANCE
Public Entrance.



STATION 2: SOUTH SIDE
Large Apron. Lots of room for expansion.

FIRE STATION 4

Burrell Ave Lewiston, Idaho 83501

Built 1973

General

Facility Size	Main Station 5,000 sf
Bays	2 double depth drive thru bays
Current Staffing	3
Current Apparatus	Engine (3), Medic (0), Reserve Engine, Reserve Rescue
Future Staffing	3
Future Apparatus	Medic (2), Battalion Chief (1)

Fire Station 4 is a 5,000 square foot building located adjacent to the Lewiston Airport. Emergency response is on Burrell Avenue via drive through bays that also access the Airport property. Parking is provided adjacent to the station and is accessed off Burrell Avenue. The property is located adjacent to the airport and was formerly functioned as the Aircraft Rescue and Fire Fighting (ARFF) facility for the Airport. Recently a new ARFF was constructed on the south side of the airport and this function has been removed from the station. The surrounding neighborhood is composed of primarily residential structures.

ASSESSMENT

Site

Fire Station 4 has a front concrete apron on the south side of the station and asphalt cement paved (ACP) parking area on the east side of the station with a mix of visitor and employee parking (5 striped stalls) which are inadequate to serve the needs of the station. Unmarked paved areas are additionally used for parking. Trash cans are used at the station and vs dumpsters. There appears to be a drywell on the south front yard of the station.

There is not an ADA designated accessible parking stall, thus making the parking non-compliant.

Sidewalks serving the station limited to non-existent and are in poor condition.

The site is semi-secure with minimal fencing. It was noted that crime around the station is less than that at Station 1. There is a security fencing between the back of the station and the Airport grounds.

The site is well maintained by the Fire Department.

Exterior/Envelope

The concrete masonry unit exterior envelope is in good condition. There are minimum pitched roofs on the facility with rooftop mechanical penetrations. The roof membrane is nearing the end of its useful life and was scheduled to be replace several years ago. The floor is a concrete slab-on-grade.

Interior

The existing materials and finishes generally exhibit signs of wear throughout. The station appears to have undergone a few minor renovations over the years to try and accommodate more Storage and workout areas. Living area materials, finishes, and appliances are residential in nature. The following materials were noted in the station:

- Concrete apparatus bay slab- inadequate drainage for today's standards.
- VCT flooring select areas (fair condition) - joints in flooring material are difficult to maintain.
- Ceramic tile in restrooms, floors and wainscot are in fair condition and appear to be original to the building. Grout joints tend to be difficult to maintain.
- Rubber base in fair condition.
- Gypsum wallboard and concrete masonry unit walls
- A variety of painted wood and metal doors (no kick plates in areas, paint is damaged) - fire ratings do not meet code.
- Cabinetry and countertops show some wear. Countertops are finished with plastic laminate.
- Lay-in acoustical ceiling tiles, gypsum wallboard.

Programming/Space Planning

Crew living and working areas on the west side of the apparatus bays. The unsecured public lobby enters into the Apparatus Bay and has a north entrance with no internal point of security.

Generally sleeping rooms and restrooms are inadequate to today's standards. Overall, the department does not have enough adequate sleeping rooms nor locker space to support staff adequately. One of the bedrooms does not have an exterior window. The Department provides linens and bedding for staff. The exercise room is small and inadequate and split between two spaces. Part of the exercise room is located in an alcove off of the Apparatus Bay. Storage is inadequate throughout the station.

The kitchen includes residential grade appliances, two refrigerators, which works fine for the station, and individual food lockers which are limited in number.

The Department has a culture of doing briefings at shift change in the dining area.

Decontamination areas are located in alcoves off of the apparatus bay with no clear separation between the bay and decontamination area. Turnout gear storage, and hose storage functions are located at the perimeter of the bay. This is not only best practice, but this is also impacting clearance around apparatus. This is not being done by choice but out of necessity due to lack of space. SCBA fill, SCBA storage and medical gas storage is located in the Apparatus Bay due to a lack of space in the fire station.

Operations

Turnout time throughout the station is reasonable mainly due the station being small relative to modern facilities.

Cross-contamination is a problem throughout the station. This is a result of inadequate mechanical systems (residential in nature) and inadequate air-pressure differentials, modern decontamination and cleaning areas, lack of hand and boot wash areas, and clear transition zones between "clean" living areas, and "dirty" (higher degree of potential contaminates) apparatus, and support spaces.

Gender Neutrality- the facility has no options to accommodate mixed genders however at this time, given staffing this has not been a significant issue. The facility only has one multi-fixture restroom shared by all the staff. We anticipate that will change over time.

Bay lengths and widths do not accommodate industry standard clearances around apparatus.

Codes & Standards

Fire ratings - separation between the sleeping areas and the apparatus bay do not meet code

Fire suppression – There is no fire suppression system in the building.

ADA – does not meet requirements throughout the station: restroom accommodations, door access, program accommodations, signage, counter heights, etc.

Turnout storage- storage located in the apparatus bay and does not meet the best practices on a modern station

Decontamination/cleaning - the limited facilities observed are not enclosed and segregated from the bays.

Medical gas storage - exceeds fire code limits based on quantity being stored. Medical gas tanks are required to be stored in one-hour fire resistive in vented designated areas.

Apparatus fill is located above the apparatus, which are being removed in many jurisdictions due to potential safety issues. One of the fill stations has been moved down to a wall location at the front of the Apparatus Bay.

Structural

The building is a single-story masonry exterior walls and wood framed interior walls and is generally rectangular in plan. There are two masonry apparatus bays. Some areas in the bays appear to be uninsulated. The roof is minimum pitch structure framed with wood trusses throughout but that will need validation.

The lateral-force-resisting system should be examined to determine the necessity of a seismic upgrade if a renovation were to occur.

Mechanical/Plumbing

The office/sleeping/dayroom areas are served by a ducted air system. The sleeping rooms have no individual control.

The apparatus bay is heated with radiant overhead unit heaters. The heaters appear to be in good working order.

There is no general bay exhaust for the apparatus room, however the bay does have a Magna-grip source capture exhaust system. The fan only runs as needed automatically when engines are on and the bay doors are in process of opening. When the vehicle exits the bay, the flexible duct automatically detaches from the vehicle.

The station includes a cleaning and decontamination sink located in the apparatus bay.

Fixtures though out the station generally appear to be in fair condition

Fire Suppression

Any renovation to this facility should incorporate a commercial grade fire suppression system added.

Electrical/IT/Alerting

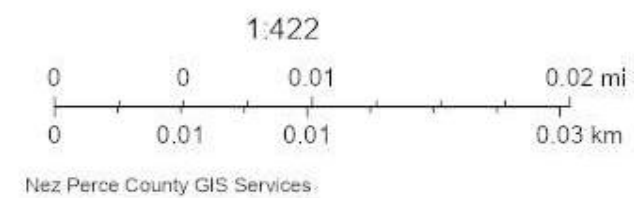
The facility does not include a modern integrated and segregated alerting system

The size of the service appears adequate for the buildings electrical needs a significant renovation will most likely demand a service replacement. The Electrical service is very old and appears to be original to the building. Parts may be difficult to obtain due to the age.

The building has a cloud-based server. The building lacks building security for access control, intrusion detection and camera surveillance.



January 13, 2020



Lewiston Fire Department Station 4



STATION 4: APPARATUS BAY



STATION 4: APPARATUS BAY



STATION 4: APPARATUS BAY

Additional air storage in apparatus bay.
Should be in a separate room.



STATION 4: SCBA APPARATUS BAY

SCBA in apparatus bay, should be in a separate room.



STATION 4: DECON

Undersized and in apparatus bay.



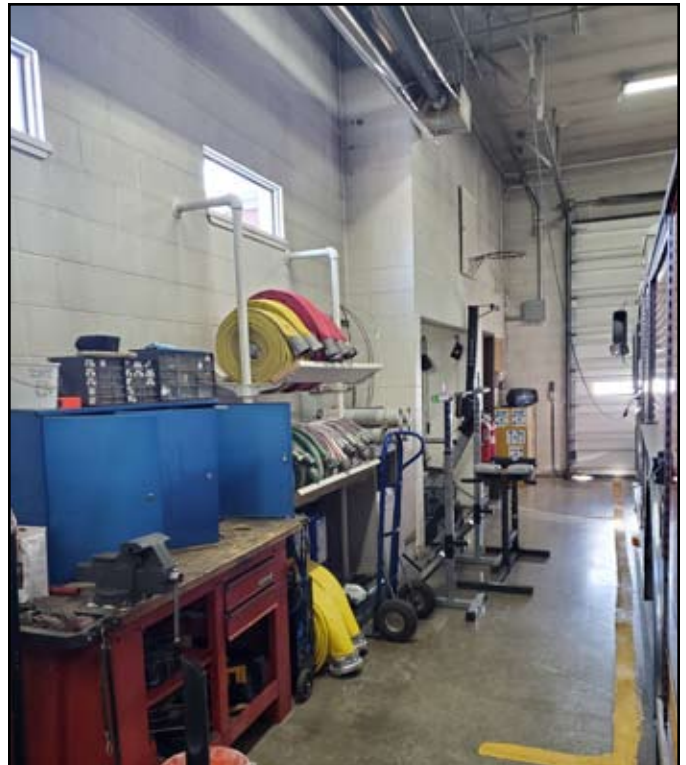
STATION 4: ELECTRICAL PANELS

Very old, located in apparatus bay.



STATION 4: ELECTRICAL

Very old, located in apparatus bay.



STATION 4: WORK / EXERCISE IN APP. BAY



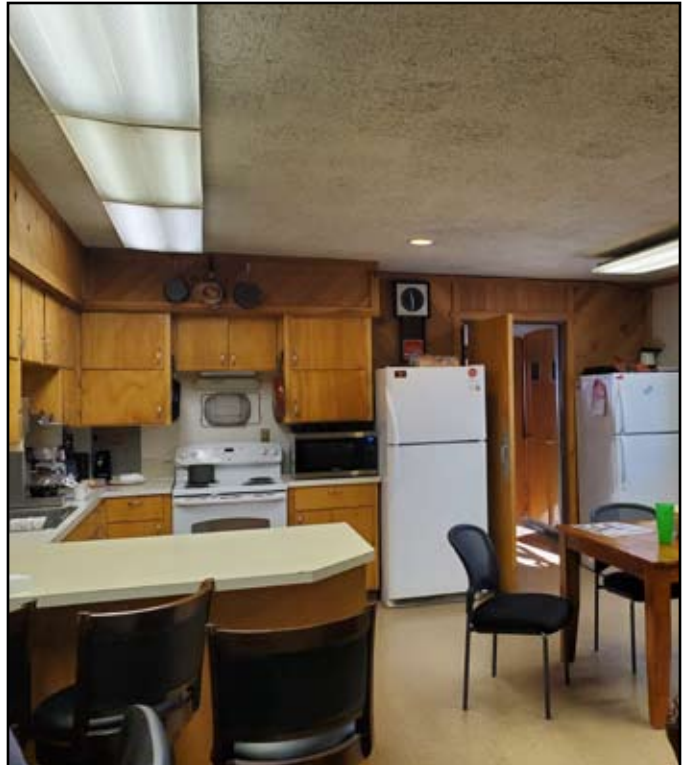
STATION 4: ENTRY WAY
Part of apparatus bay, not separated.



STATION 4: EXERCISE ROOM OFF APP. BAY
Alcove off apparatus bay.
Should be in separate room.



STATION 4: STORAGE AND BUNKER GEAR



STATION 4: KITCHEN
Very dated.



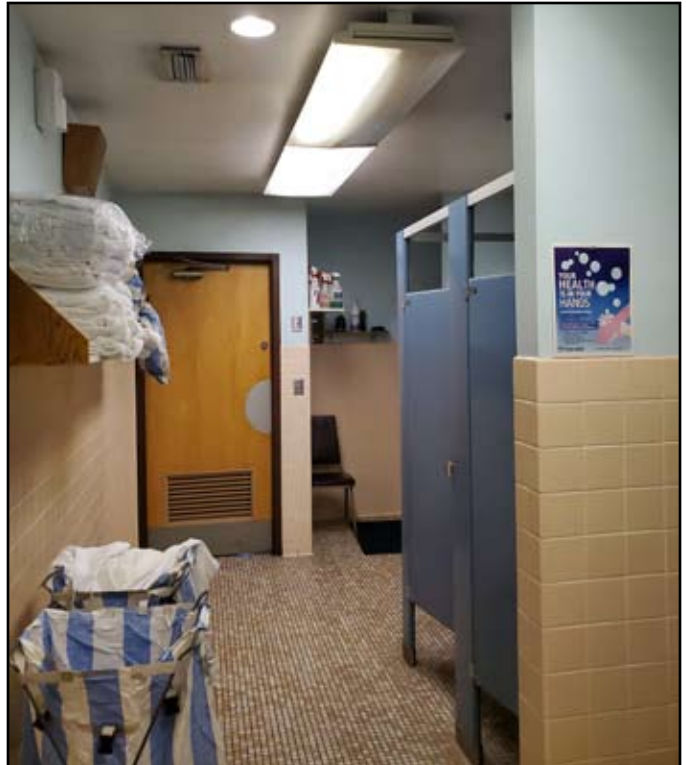
STATION 4: LOCKERS



STATION 4: RESTROOM



STATION 4: RESTROOM & SHOWER
Only one shower. Not ADA accessible.



STATION 4: RESTROOM
Not ADA accessible. Only restroom in building.



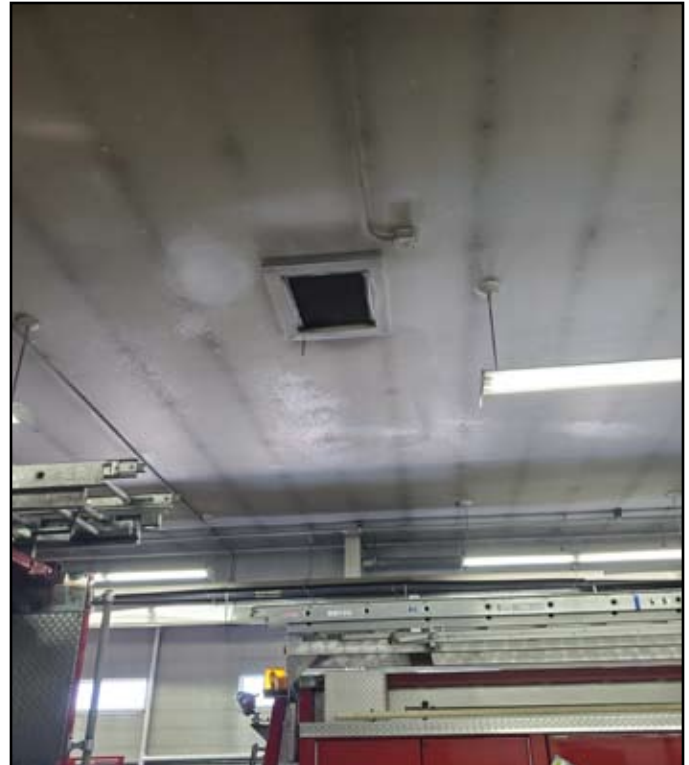
STATION 4: OFFICE / CAPTAIN SLEEPING



STATION 4: DAYROOM



STATION 4: SLEEPING AREA



STATION 4: CEILING IN APPARATUS BAY
Diesel exhaust on ceiling due to lack of vehicle exhaust system.



STATION 4: ENTRANCE



STATION 4: EXTERIOR

FIRE ADMINISTRATION BUILDING

1245 Idaho Street, Lewiston, Idaho 83501

Built 1962 (purchased by City 2002)

General

Facility Size	2,474 sf- 1,249 sf Main Floor & 1,225 sf Basement
Bays	0
Current Staffing	9 Total: Chief, Deputy Chief, Training Chief, Fire Marshal, (2) Admin, (2) Inspectors, Battalion Chief
Current Apparatus	Command Vehicles
Future Staffing	Addition of (1) EMS Chief- 3-5 years, (1) Fire Inspector 20+ Years (2) Off-site positions at City Hall
Future Apparatus	N/A

The Administration Building is a +/-2,474 square foot building including a basement, sited adjacent to Fire Station 1. Parking is provided in an "L" configuration with the majority of the parking accessed from G Street. The property is a corner lot surrounded primarily by commercial use buildings. The Fire Administration Building is located directly south of Fire Station 1. The Administration office does not currently have any space to add future staff.

ASSESSMENT

Site

The Administration Building has an asphalt cement paved (ACP) parking area on the east and south side of the building with a mix of visitor and employee parking (9 stalls). Unmarked parallel parking is used on the south side of the building. The asphalt surfacing is in good condition. Trash bins are kept behind a wood fenced area to the north of the building. No on-site surface water conveyance to a swale and potential drywell/infiltration area was observed.

There is one ADA designated accessible parking space located in SE corner of the parking lot with a ramp up to the front entry. Sidewalks serving the building are in good condition.

The site is not secure, and it was noted that crime has become an increasing challenge at this location (in the context of adjacent Fire Station 1 discussion). While security fencing around the Administration Building would help address this issue, there is always a balance as to how fencing might undermine the open nature of a public building.

The site is well maintained by the Fire Department.

Exterior/Envelope

The brick and lap siding exterior envelope is in good condition, though masonry could be cleaned. There are flat roofs on the facility with rooftop mechanical/plumbing ventilation penetrations with no observed fall protection. No roofing concerns were noted.

Interior

The existing materials and finishes generally well-kept and are in reasonably good condition. The Administration Building appears to have undergone a remodel approximately 7 to 8 years ago. The following materials were noted in the station:

- VCT flooring in the basement (good condition) joints in flooring material are difficult to maintain.
- VCT flooring in kitchen area in the basement is in good condition however joints in flooring material are difficult to maintain.
- Roll carpet (fair condition) on the main floor office areas.
- Roll carpet (poor condition) in the basement needs to be replaced.
- Rubber base throughout in good condition
- Gypsum wallboard in good condition
- Stained wood doors and wood frames (no kick plates in areas).
- Cabinetry and countertops in good condition.
- Lay-in acoustical ceiling tiles main floor, gypsum wallboard walls and ceilings
- Ceilings in the basement are gypsum wallboard with a popcorn finish. Need to verify that the ceiling finish does not contain asbestos.

Programming/Space Planning

Administrative staff is located on both the main and basement level of the facility with programmatic elements on each floor. Due to lack of storage, typical programmatic adjacencies are not ideal. Overall, additional future office space is needed, public education storage is needed, and an administrative conference room is also needed. While this facility does not include an emergency operations center, the facility should be connected to auxiliary power in the event of a power disruption to maintain functionality.

Operations

N/A

Codes & Standards

Fire suppression- the facility does not have a fire suppression system, while not required, this is the commend center and is highly recommended.

ADA- does not meet requirements throughout the building: restroom accommodations and access, door access, program accommodations, signage, counter heights, etc. The only restrooms in the building are located in the basement and are not accessible. The only break room in the building is also located in the basement and is not accessible.

Turnout storage- Administrative /Training staff turnout storage is generally kept in command vehicles which is adequate.

Decontamination/cleaning- Administrative /Training staff turnout/PPE cleaning and decontamination, if needed, will continue to occur at a fire station.

Exiting: Basement has two egress points to meet existing requirements. The second exit does pass through an office that must remain unlocked so exit can be accessed. Two exits are provided on the main floor.

Structural

The building is a two-story, main floor and basement, wood-framed building with a masonry veneer and is generally rectangular in plan. The roof framing consists of sloping wood joists and a wood deck. The floor is a concrete slab-on-grade in the basement and wood framing on the main level.

The lateral-force-resisting system should be examined to determine the necessity of a seismic upgrade.

Mechanical/Plumbing

The offices are served by a ducted air system with an exterior condensing unit.

Fixtures though out the office generally appear to be in good condition

Fire Suppression

It is recommended that any renovation to this facility should incorporate a commercial grade fire suppression system.

Electrical/IT/Alerting

The facility does not include a modern integrated and segregated alerting system, however since this is an administrative facility, it would not be expected.

The size of the service appears adequate for the buildings electrical needs. A significant renovation will most likely demand a service replacement.

Lighting in and around the building is utilitarian except areas which have been renovated. The lighting generally outdated and with high glare. The lighting at exterior is not designed for exterior functions to take place as the lighting appears to be quite minimal.

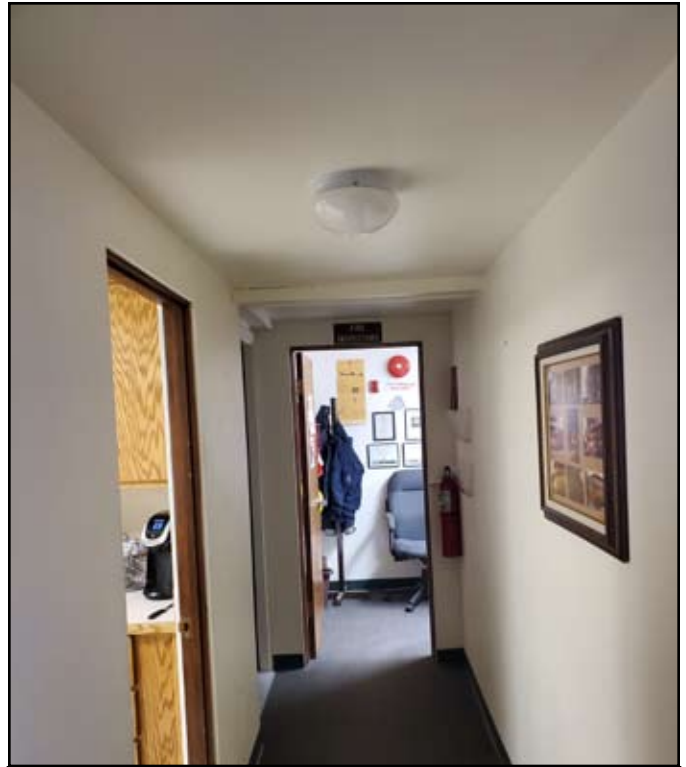
Building interior lighting controls only consists of local switches, which does not comply with current energy conservation codes in the public areas.

The building has a cloud-based server. The building lacks building security for access control, intrusion detection and camera surveillance.



ADMIN: BASEMENT BREAKROOM

Not ADA accessible to all staff because it is located in the basement.



ADMIN: BASEMENT HALLWAY

Second egress goes thru an office shown beyond.



ADMIN: BASEMENT OFFICE

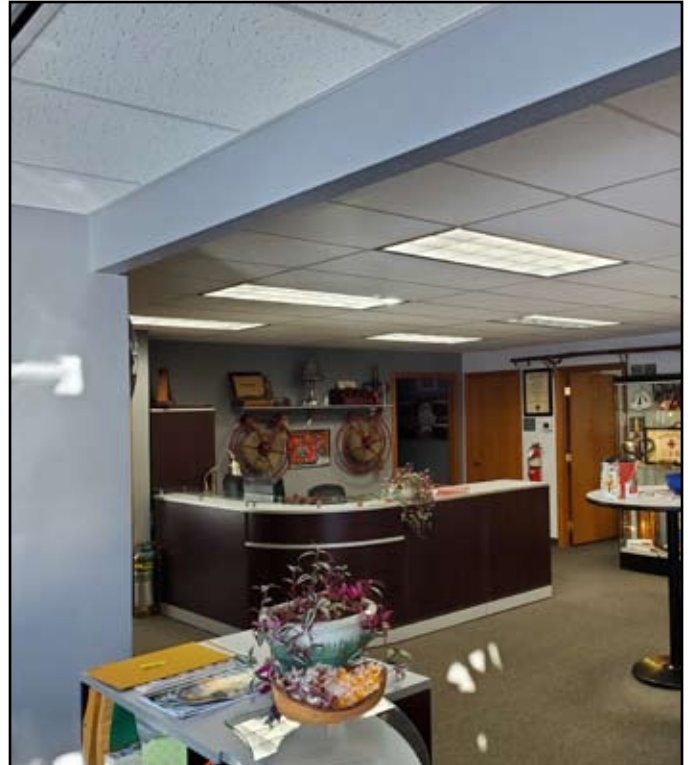
Office occupies egress path to second exit.



ADMIN: MAIN ENTRANCE



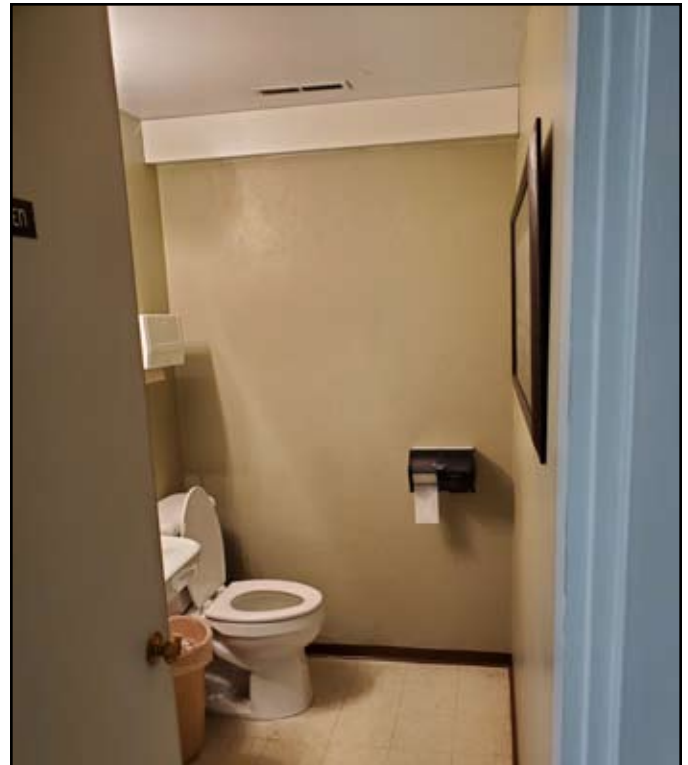
ADMIN: WEST ELEVATION
Second basement egress.



ADMIN: MAIN OFFICE



ADMIN: MAIN OFFICE



ADMIN: RESTROOM - BASEMENT

Restrooms are not ADA accessible as they are located in basement.

Lewiston Fire Department – Station Location Analysis

April 30, 2020

Introduction

The Lewiston Fire Department is an all hazards department that provides fire protection services in Lewiston, Idaho covering over 17 square miles and over 33,000 people. It additionally provides emergency medical services (EMS) in Idaho and Washington covering three counties, 1,700 square miles, and roughly 55,000 people. As the population grows in the Lewiston area, the Lewiston Fire Department requested this study to determine how best to provide its fire protection and EMS into the future.

The goal of this analysis is to evaluate the Department's distribution of fire stations, determine if the locations are adequate, and determine optimal locations for relocating any fire stations. Currently, the Lewiston Fire Department operates three fire stations within the City of Lewiston:

- **Station 1:** 300 13th Street, built in 1964
- **Station 2:** 1533 Grelle Ave, built in 1993
- **Station 4:** 424 Burrell Ave, built in 1973

As these stations age and reach their lifespan of usefulness, Lewiston is presented with the opportunity to replace these stations with facilities in locations which may allow the Lewiston Fire Department to better execute its mission.

Therefore, the key question driving this analysis is, what is the best location and configuration for stations to serve the Lewiston community into the future? This study answers those questions by following the below steps:

1. Establish Baseline Performance
2. Project Future Need
3. Model Alternative Station Location Scenarios
4. Evaluation Scenarios
5. Make Recommendations

Data Sources

The above method relies primarily on the following data sources:

- **Historical Fire and EMS Incidents:** Four years of fire and EMS incident data were provided by the Lewiston Fire Department for fiscal years 2015-2019. The data included breakdown by call type, date, location, response apparatus, and response time. For some data points, the location data was

not precise enough to be used in certain parts of analysis, which is discussed in more detail in the relevant sections below.

- **US Census American Community Survey (ACS) 5-Year Estimates:** The US Census uses statistically scaled survey data collected over rolling 5-year periods to produce demographic estimates at the city-level and many other geographies. The 2013-2017 ACS 5-year estimate for population of the City of Lewiston is used as the base population figure throughout this study.
- **Population and Housing Projections:** Population and housing projections were provided by the City of Lewiston Planning Department. These projections reflect a base year of 2017 and projection year of 2034. BERK digitized and used them as the basis for projecting growth in fire and EMS incidents.
- **Lewiston Transportation Network:** The City of Lewiston provided an up to date transportation network layer complete with speed limits, which was used to map baseline travel times, and served as the foundation for understanding what a future network could look like in order to model future travel times.
- **Transportation Analysis Zones (TAZ):** TAZ layers were provided by the Lewis-Clark Valley Metropolitan Planning Organization (LCVMPO) and served as the geographic level for which to project growth in incidents. TAZ boundaries are determined by the transportation network and help to segment areas of growth within the City of Lewiston. Additionally, the boundaries extend out of the city into the areas that are likely to receive new growth, which is critical for understanding the impacts of growth on providing fire protection and EMS.

Assumptions

A number of key assumptions needed to be made a part of this study, illustrated below:

- **Study Area:** The study area is defined as the City of Lewiston and areas where the City of Lewiston is likely to have new growth and/or annex throughout the planning period. This is due to both the scope of the initial request for proposals, as well as due to data limitations. The Lewiston Fire Department does serve communities outside of the City of Lewiston, including the City of Clarkston, and while thinking about how best to serve the fire protection and EMS to the entire region would be a valuable future planning effort, the scope of this effort is to understand first and foremost how the Lewiston Fire Department can best serve the City of Lewiston.

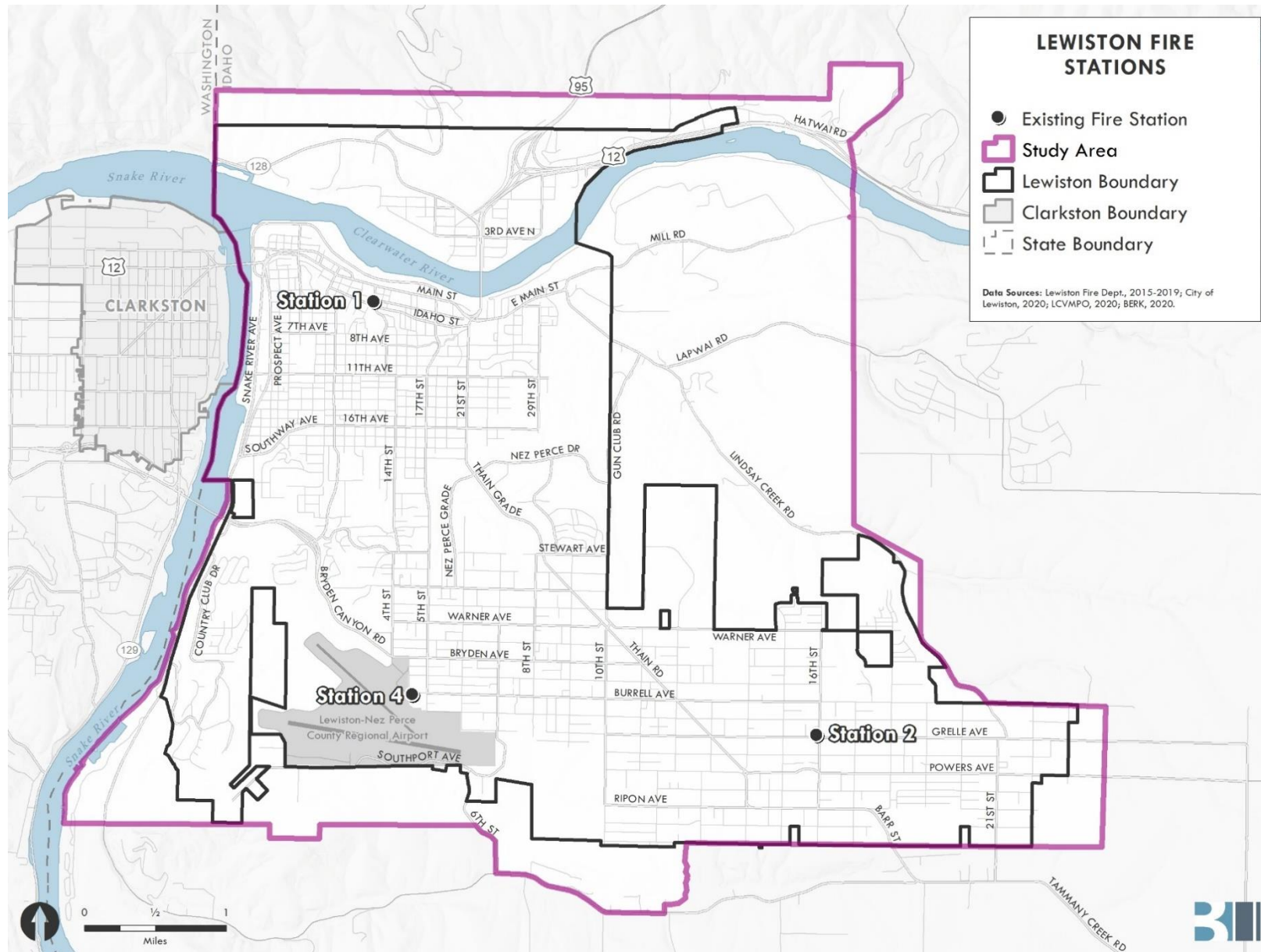
Additionally, data limitations prevented this analysis from being extended outside of the aforementioned study area boundary. Transportation network data with accurate speed limits, incident data, and growth projections were only available for the City of Lewiston.

- **Number of Stations:** Based on guidance from the Lewiston Fire Department, this study models and evaluates different scenarios for three fire stations. Adding more stations was not considered as part of this process. Additionally, it was decided that Station 2 would remain in its present location in all scenarios. The Station 2 property has room to accommodate a larger station, and is located in an area that is well poised to serve growth in the east part of the City of Lewiston.

- **Response Time Service Standards:** An 8-minute service standard was agreed upon with the Lewiston Fire Department as the basis for modeling and evaluating the different scenarios. This is defined as the goal of reaching all incidents within the study area within 8 minutes. The following section explains this in relation to National Fire Protection Association codes and standards.

To best serve the layout of this report, each section first presents the narrative, followed by any relevant maps at the end of each section.

Exhibit 1. Lewiston Fire Stations and Study Area



Source: Lewiston Fire Department, 2020; LCVMPD, 2020; BERK, 2020.

Establish Baseline Performance

Travel Time Mapping

Understanding expected travel times is a critical element of evaluating current and future service. Therefore, an early piece of this analysis uses the current transportation network to model travel times from existing Lewiston Fire Stations.

The National Fire Protection Association (NFPA) presents standards for total response time in Codes and Standards 1710 (abbrev. NFPA 1710): Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments.¹ The NFPA's standards break out total response time into the following phases:

- **Phase 1** – Alarm Handling Time
- **Phase 2** – Turnout Time and Travel Time
- **Phase 3** – Initiating Action/Intervention Time

This study focuses on the travel time portion of Phase 2. Sections C.3.4-C.3.7 of NFPA 1710 set out the following timelines for travel time performance objectives:

- First-arriving engine on scene time: **4 minutes**
- Second-arriving company on scene time: **5 minutes**
- Initial full alarm (low and medium hazard) time: **8 minutes**
- Initial full alarm (high hazard/high-rise time): **10 minutes and 10 seconds**

The project team, in agreement with Lewiston Fire Department staff, chose a target travel time measure of 8 minutes to be used for this study, however as shown throughout, travel time measures are broken up by 1-minute increments.

Exhibit 4 at the end of this section presents initial travel time mapping, visualizing travel times along the Lewiston transportation network under modeled conditions (Appendix A at the end of the report breaks these travel times down by station).

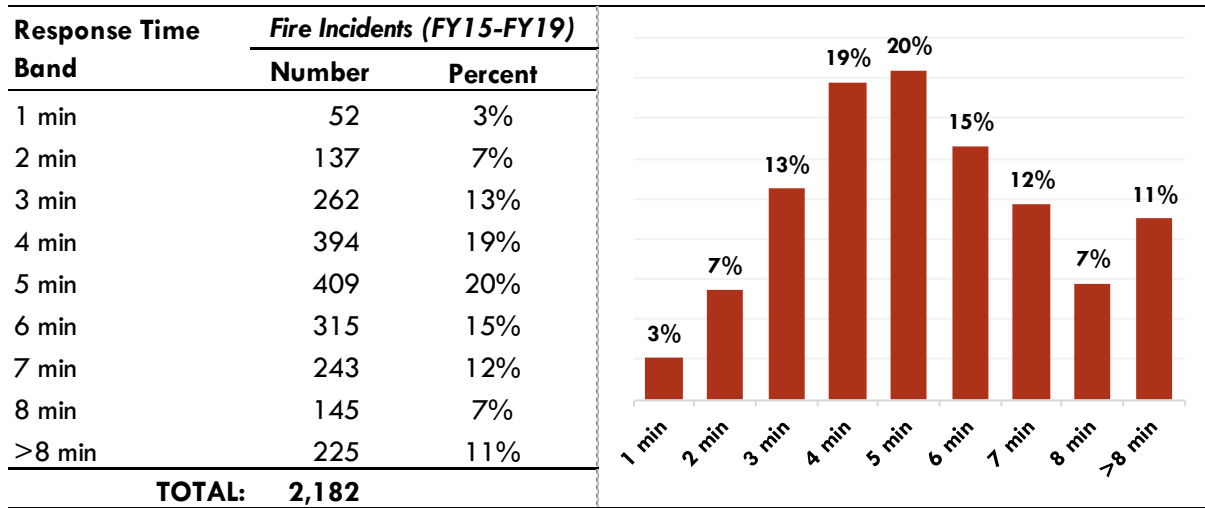
Response Time Mapping

For the following portion of the analysis, incidents were filtered by those which fall inside the study area and those that have precise enough location data to be geolocated. Roughly 5% of total incidents do not meet these criteria.

Fire Incidents

For fiscal years 2015-2019, a total of 2,182 fire incidents within the study area met the location precision criteria above. Exhibit 2 shows these calls broken down by response time band.

¹ <https://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards/detail?code=1710>

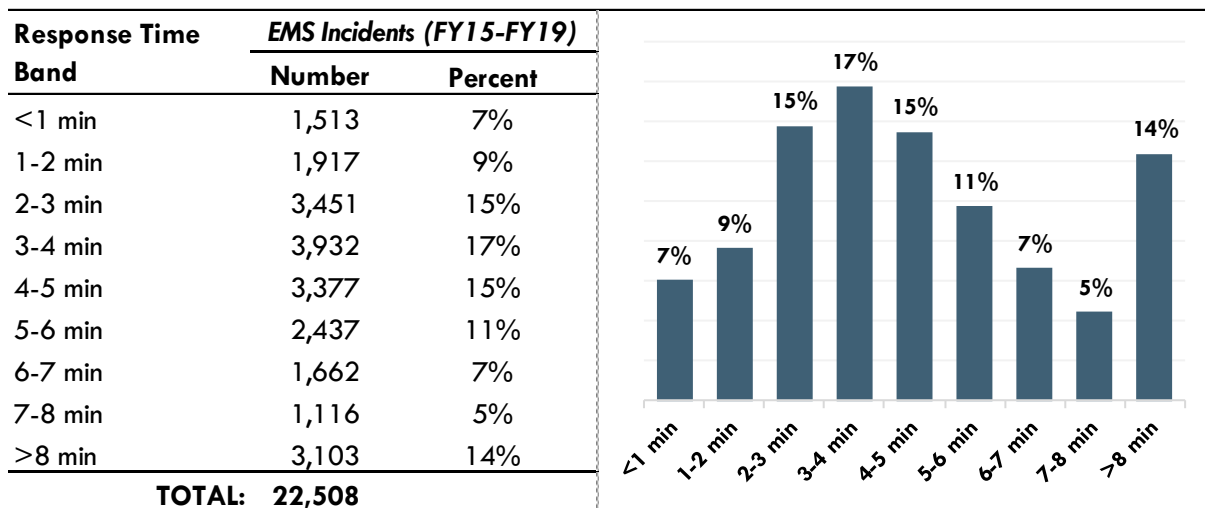
Exhibit 2. Alarm to Arrival Time, Fire Incidents Located in Study Area, FY2015-FY2019

Source: Lewiston Fire Department, 2015-2019; BERK, 2020.

Average response time for these incidents was roughly 5.5 minutes across the entire study area. One helpful way to visualize this in different parts of the study area is to show average response time for a smaller geographic area. Exhibit 5 below shows average alarm to arrival time by 500x500 foot grid cell (~6 acres) for the identified study area. Incidents located within a given cell were combined to determine average response time within the cell.

EMS Incidents

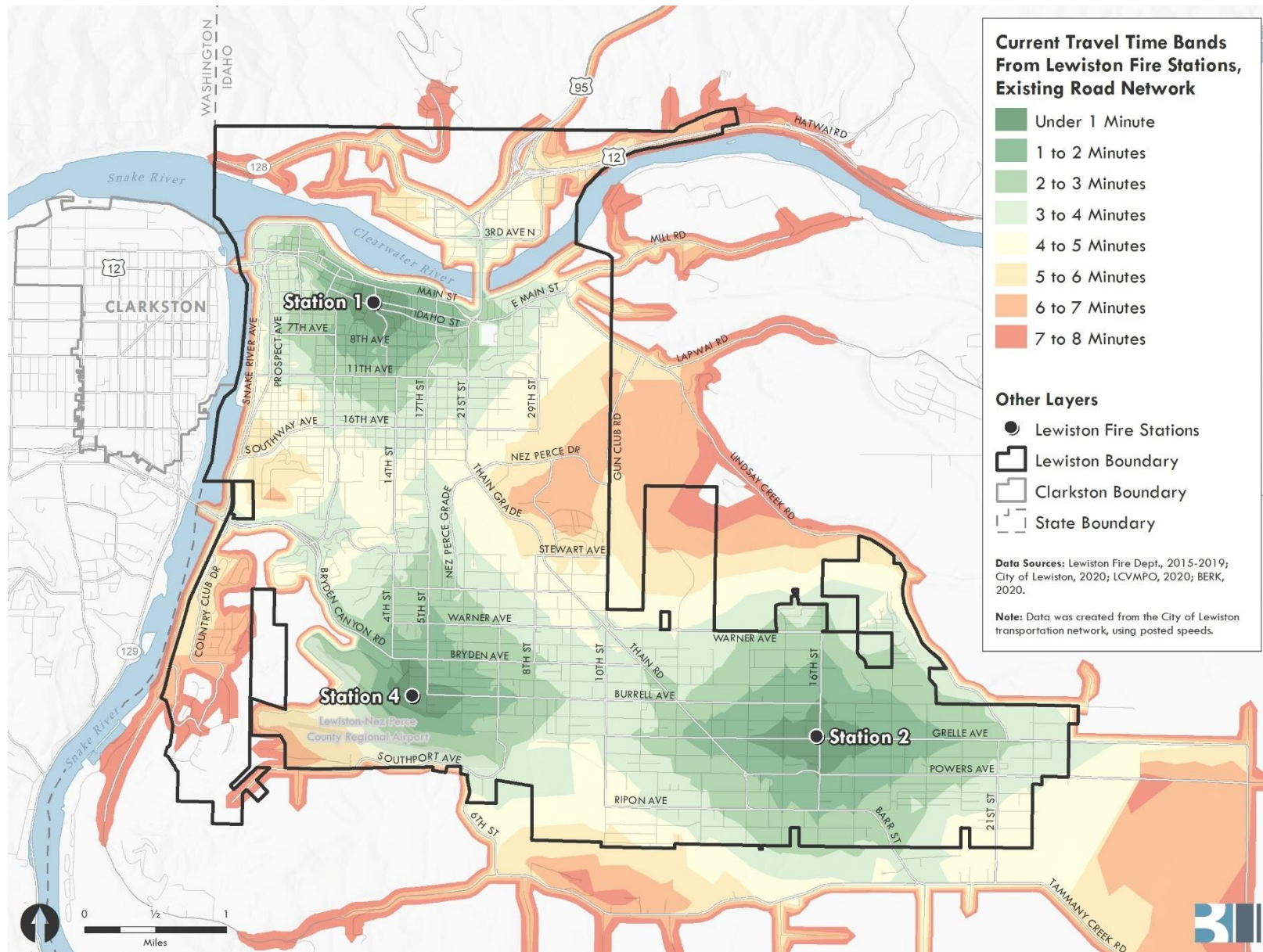
For fiscal years 2015-2019, a total of 22,508 EMS incidents within the study area met the location precision criteria above. Exhibit 3 shows these calls broken down by response time band.

Exhibit 3. En Route to Arrive Time, EMS Incidents Located in Study Area, FY2015-2019

Source: Lewiston Fire Department, 2015-2019; BERK, 2020.

Average response time for these incidents was just over 5 minutes across the entire study area. Exhibit 6 shows average en route to arrival time by 500x500 foot grid cell (~6 acres) for all of the study area.

Exhibit 4. Travel Time From Lewiston Fire Stations



Source: BERK, 2020; Lewiston Fire Department, 2015-2019; City of Lewiston, 2020; LCVMP, 2020.

FIRE

WASHINGTON
IDAHO

Snake River

Clarkston

Station 1

7TH AVE
8TH AVE
11TH AVE
16TH AVE
SOUTHWAY AVE
PROSPECT AVE
MAIN ST
IDAHO ST
E MAIN ST
MILL RD
LAPWAI RD
GUN CLUB RD
NEZ PERCE DR
THAIN GRADE
STEWART AVE
WARNER AVE
BRYDEN AVE
8TH ST
10TH ST
THAIN RD
BURRELL AVE
RIPON AVE
SOUTHPORT AVE
6TH ST
GRELLE AVE
POWERS AVE
BARR ST
TAMMANY CREEK RD

Station 2

Station 3

Station 4

Lewiston-Nez Perce County Regional Airport

Clearwater River

HATWAIRD

95

12

128

129

Under 1 Minute
1 to 2 Minutes
2 to 3 Minutes
3 to 4 Minutes
4 to 5 Minutes
5 to 6 Minutes
6 to 7 Minutes
7 to 8 Minutes
Over 8 Minutes

Other Layers

- Lewiston Fire Stations
- Lewiston Boundary
- Clarkston Boundary
- State Boundary

Data Sources: Lewiston Fire Dept., 2015-2019; City of Lewiston, 2020; LCVMPD, 2020; BERK, 2020.

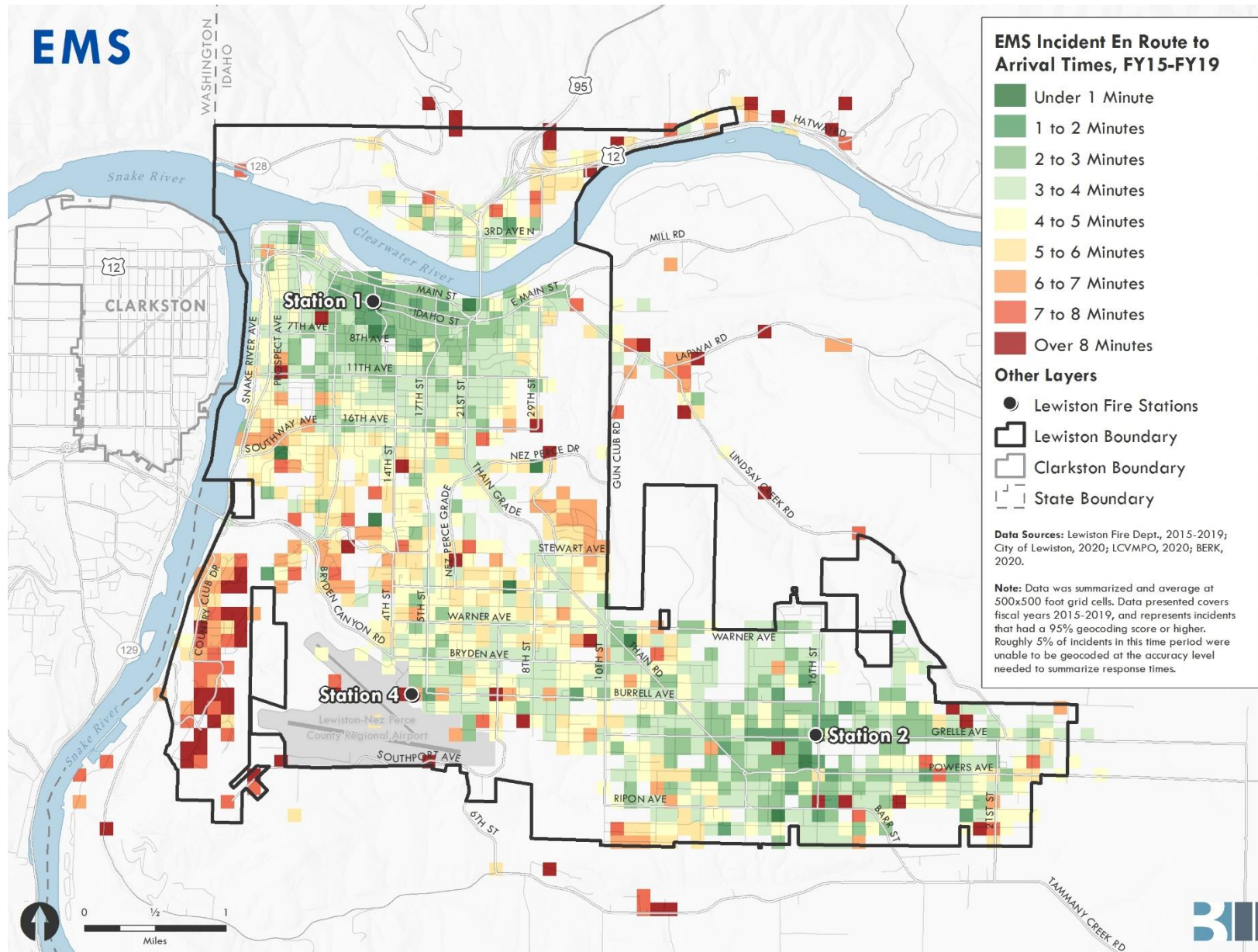
Note: Data was summarized and averaged at 500x500 foot grid cells. Data presented covers fiscal years 2015-2019, and represents incidents that had a 95% geocoding score or higher. Roughly 5% of incidents in this time period were unable to be geocoded at the accuracy level needed to summarize response times.

0 1/2 1 Miles

B

April 30, 2020 | Lewiston Fire Department | Fire Station Location Analysis

Exhibit 6. EMS Incident Average En Route to Arrival Time, FY2015-FY2019



Source: BERK, 2020; Lewiston Fire Department, 2015-2019; City of Lewiston, 2020; LCVMPD, 2020.

Project Future Need

This section of the analysis follows the steps below, and is visualized throughout this section in both tables and maps.

1. Map population and housing unit projections by Transportation Analysis Zone (TAZ).
2. Calculate percent growth in population for City of Lewiston between 2017 and 2034.
3. Project 2034 growth in Fire and EMS incidents in total study area overall based on percent growth in population.
4. Allocate 2034 growth in Fire and EMS incidents across study area based on share of total growth allocated to each TAZ.

The maps for this section show all metrics by **density per square mile**. This is an important distinction between showing raw population or incident counts, and helps to normalize the difference in size among TAZ boundaries.

Map Population and Housing Unit Projections

BERK obtained population and housing unit projections from the City of Lewiston Planning Department. The projections used for the analysis project population and housing unit growth from the base year of 2017 to the year 2034. The projections were provided hand drawn on a map, and as part of the digitizing process, BERK used TAZ as the summary level to show these projections. Additionally, as the projections show growth relative to a base year of 2017, not totals, US Census American Community Survey (ACS) 5-year Estimates were used to establish a base population estimate for the City of Lewiston (see data sources section in the Introduction for more information about ACS data).

Exhibit 7 shows total Lewiston population for 2017 and projected population for 2034. Additionally, the first map at the end of this section, Exhibit 10, shows population growth per square mile by TAZ across the entire study area.

Exhibit 7. City of Lewiston Population Growth, 2017-2034

	2017 POPULATION	2034 ADDITIONAL POPULATION	2034 PROJECTED POPULATION	PERCENT GROWTH 2017-2034
City of Lewiston	32,482	5,300	37,782	+16.3%

Source: US Census American Community Survey 5-year Estimates, 2013-2017; City of Lewiston, 2020; BERK, 2020.

Project Future Growth in Fire and EMS Incidents

Using the percent population growth derived above, BERK projected fire and EMS incidents across the study area for 2034. We first determined fire and EMS generation rates per capita and applied those rates to the 2034 overall population projection. Then, we allocated 2034 projected incidents to TAZ based on their projected share of population growth.

Fire Incident Growth

Exhibit 8 below shows baseline and 2034 projected fire incidents across the study area.

Exhibit 8. Growth in Fire Incidents, 2017-2034

	2017 FIRE INCIDENTS IN STUDY AREA ²	2017 FIRE INCIDENTS PER CAPITA	2034 PROJECTED POPULATION	2034 FIRE INCIDENTS PROJECTED IN STUDY AREA	2017-2034 GROWTH IN ANNUAL FIRE INCIDENTS
City of Lewiston	525	0.0162	37,782	611	86

Source: Source: US Census American Community Survey 5-year Estimates, 2013-2017; Lewiston Fire Department, 2015-2019; City of Lewiston, 2020; BERK, 2020.

Based on the share of growth each TAZ is projected to receive, we allocated 2034 fire incidents to TAZ and presented the projections by incident density per square mile. The maps noted below show this process:

- **Exhibit 11:** 2017 Fire Incidents per Square Mile
- **Exhibit 12:** 2034 Fire Incidents per Square Mile
- **Exhibit 13:** 2017-2034 Change in Fire Incidents per Square Mile

EMS Incident Growth

Exhibit 9 below shows baseline and 2034 projected EMS incidents across the study area.

Exhibit 9. Growth in EMS Incidents, 2017-2034

	2017 EMS INCIDENTS IN STUDY AREA	2017 EMS INCIDENTS PER CAPITA	2034 PROJECTED POPULATION	2034 EMS INCIDENTS PROJECTED IN STUDY AREA	2017-2034 GROWTH IN ANNUAL EMS INCIDENTS
City of Lewiston	4,564	0.1405	37,782	5,309	755

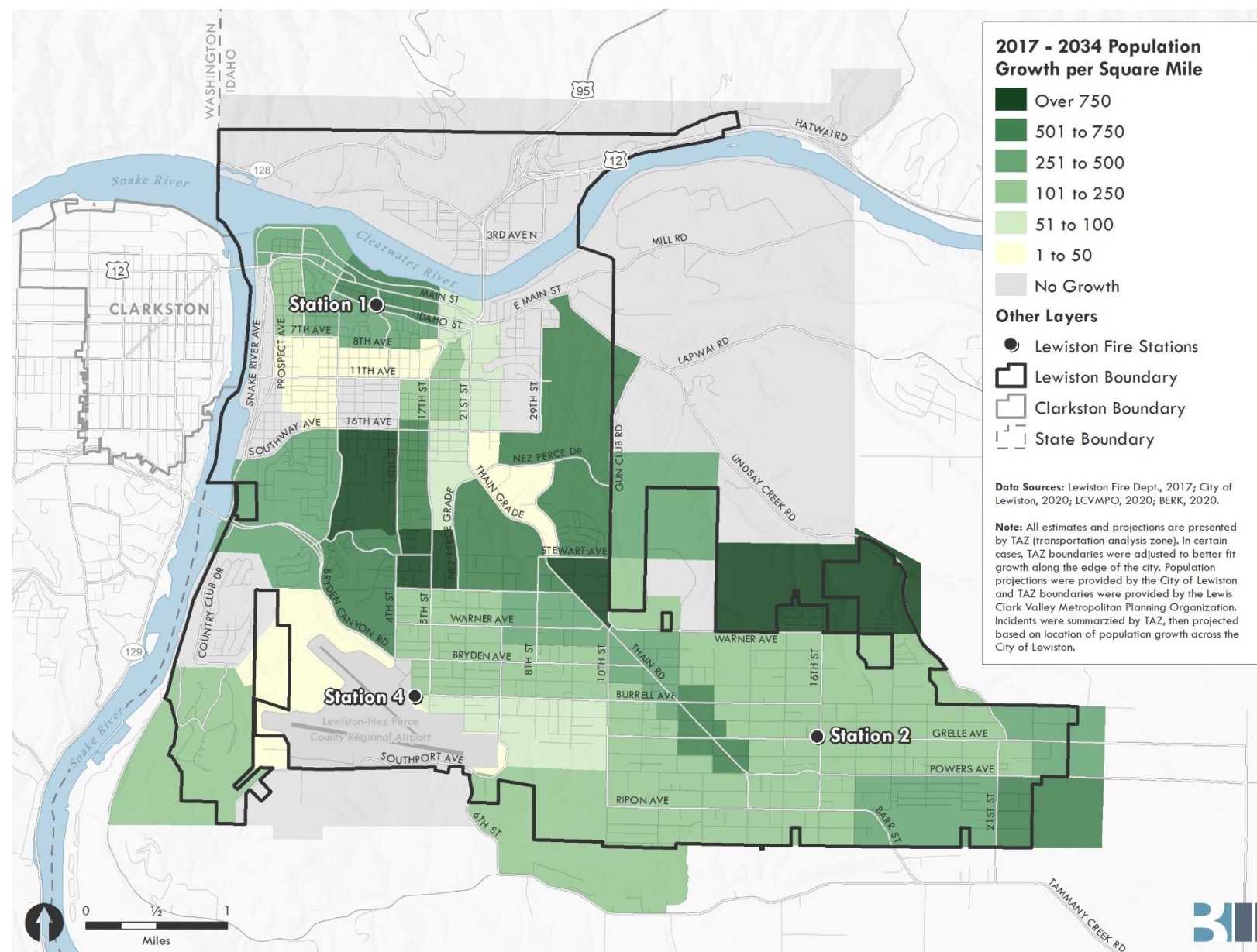
Source: Source: US Census American Community Survey 5-year Estimates, 2013-2017; Lewiston Fire Department, 2015-2019; City of Lewiston, 2020; BERK, 2020.

Using the same process as above, we allocated 2034 EMS incidents to TAZ based on share of population growth, and presented the projections by incident density per square mile. The maps noted below show this process:

- **Exhibit 14:** 2017 EMS Incidents per Square Mile
- **Exhibit 15:** 2034 EMS Incidents per Square Mile
- **Exhibit 16:** 2017-2034 Change in EMS Incidents per Square Mile

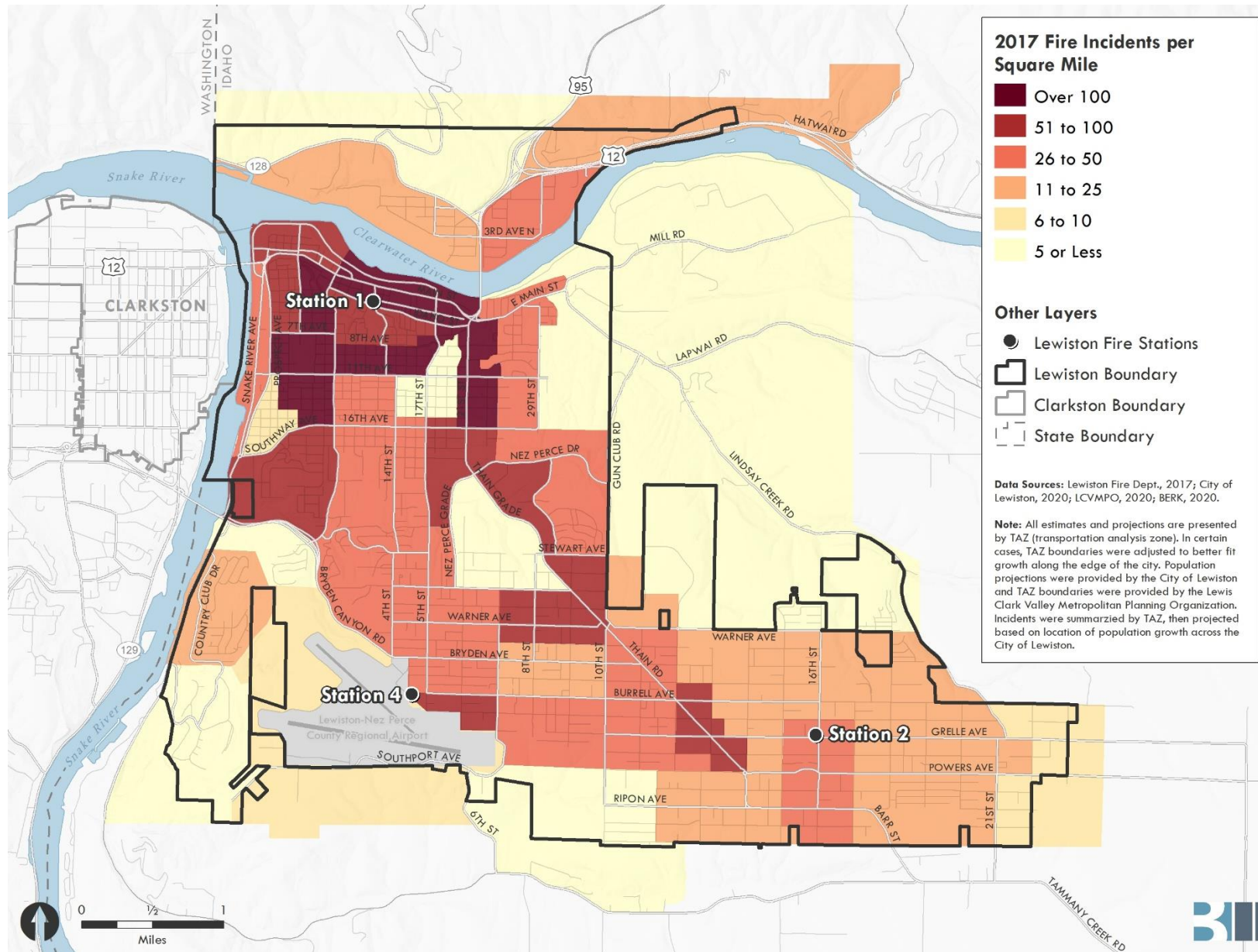
² Base year is 2017. However, because four full calendar years of incident data was provided, as well as to account for any anomalies in any given year, the average annual incidents between 2015-2018 is being used as the 2017 base year data.

Exhibit 10. 2017-2034 Population Growth per Square Mile



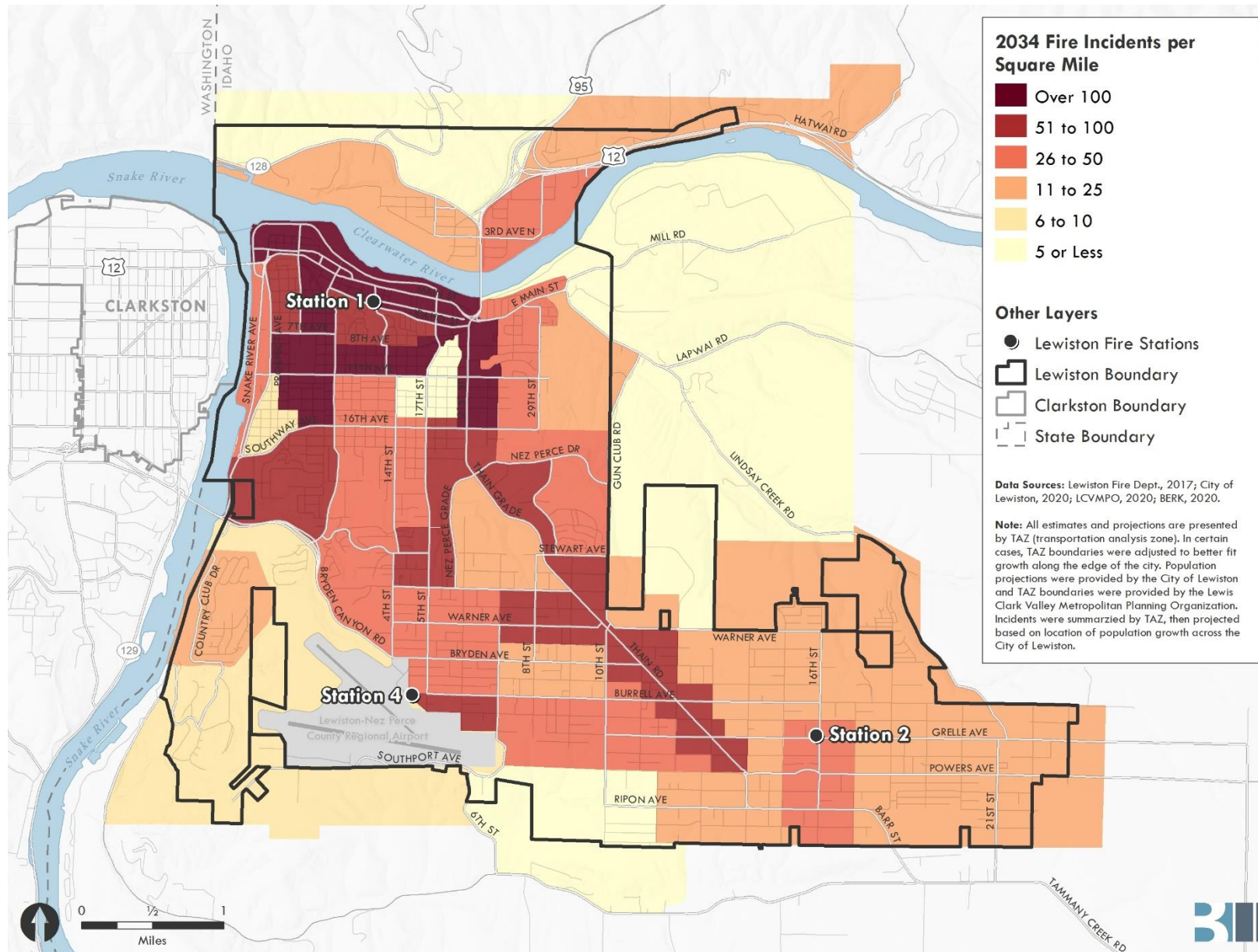
Source: BERK, 2020; Lewiston Fire Department, 2015-2019; City of Lewiston, 2020; LCVMP, 2020.

Exhibit 11. 2017 Fire Incidents per Square Mile



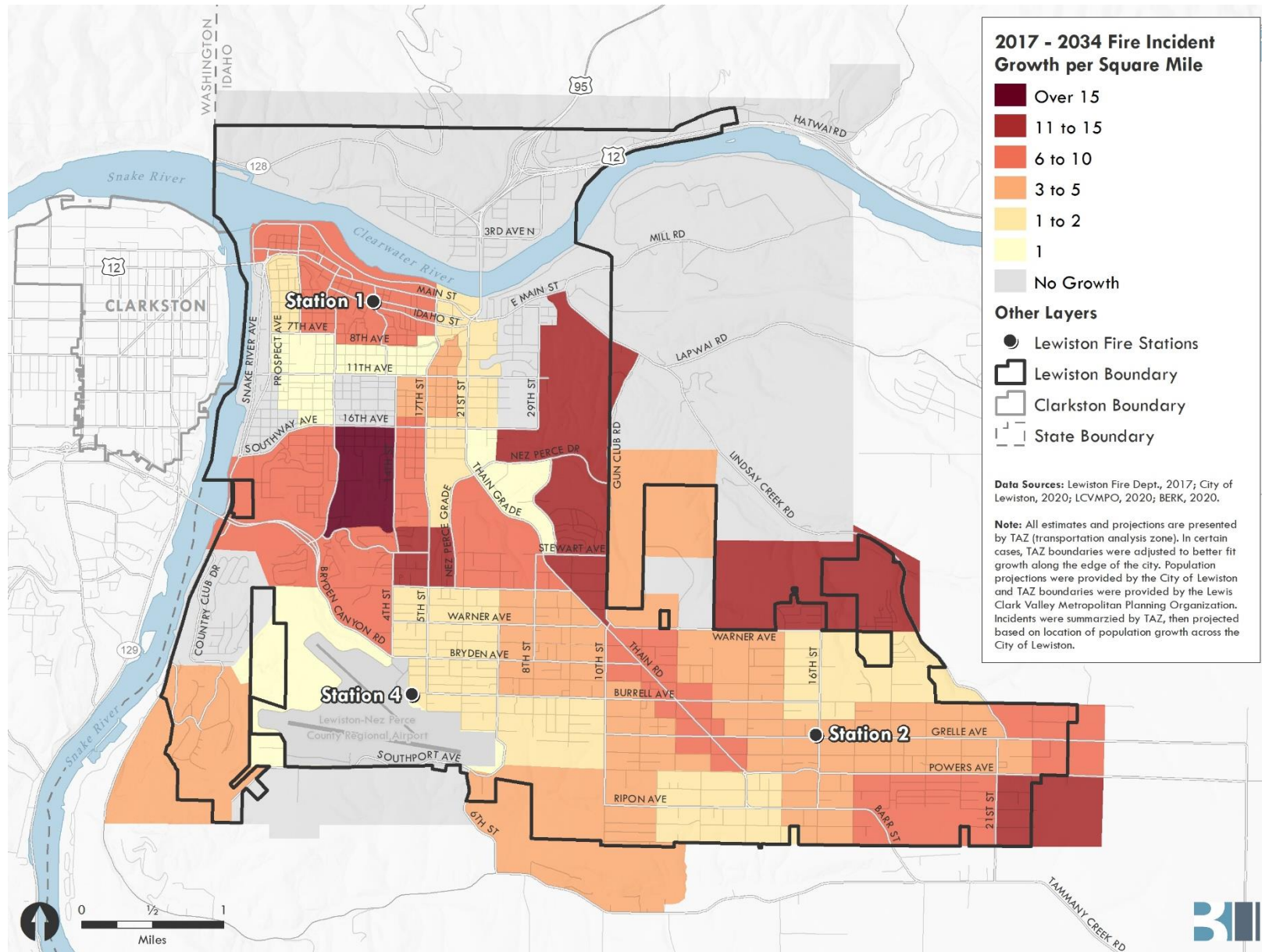
Source: BERK, 2020; Lewiston Fire Department, 2015-2019; City of Lewiston, 2020; LCVMP, 2020.

Exhibit 12. 2034 Projected Fire Incidents per Square Mile



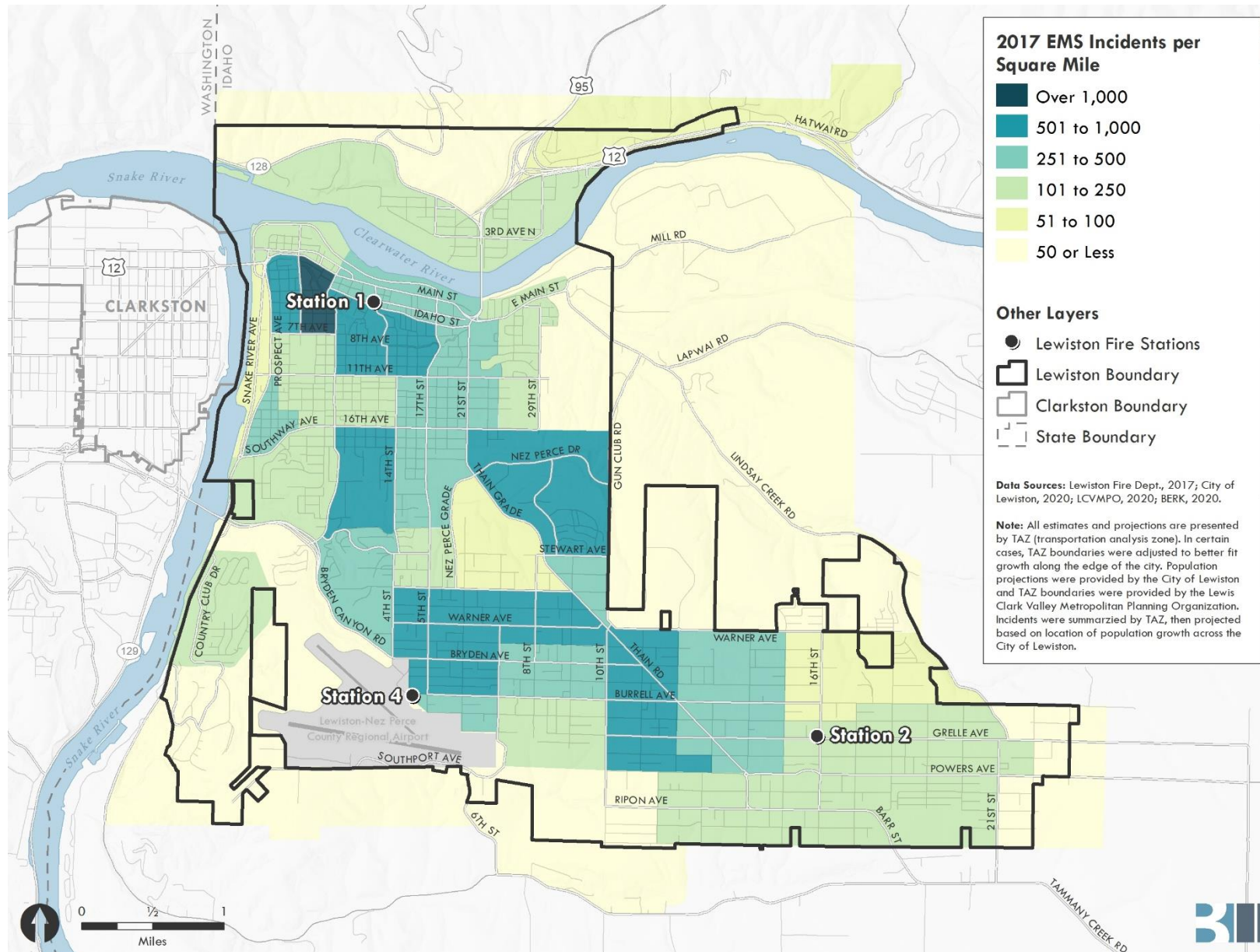
Source: BERK, 2020; Lewiston Fire Department, 2015-2019; City of Lewiston, 2020; LCVMP, 2020.

Exhibit 13. 2017 to 2034 Fire Incident Growth per Square Mile



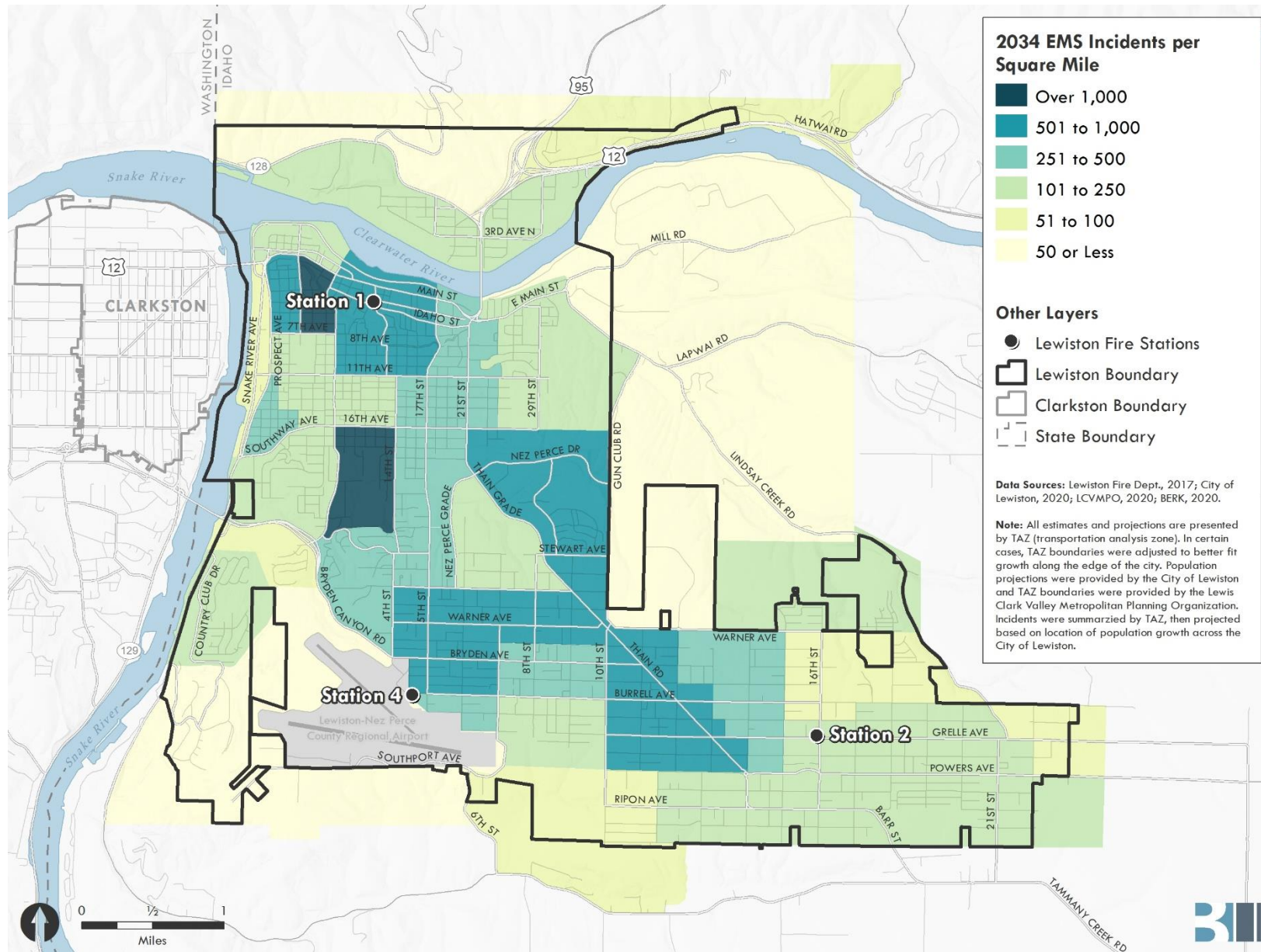
Source: BERK, 2020; Lewiston Fire Department, 2015-2019; City of Lewiston, 2020; LCVMP, 2020.

Exhibit 14. 2017 EMS Incidents per Square Mile



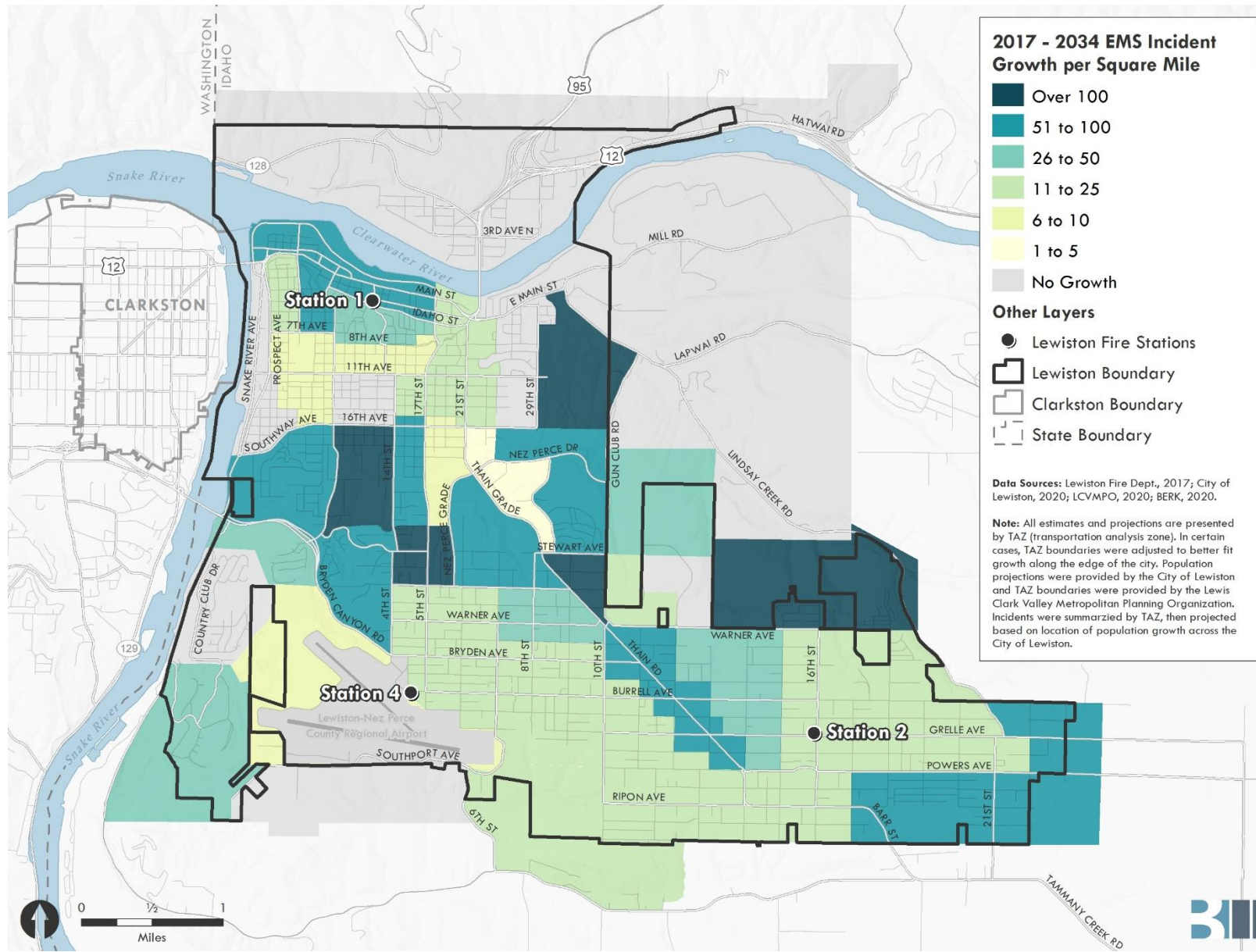
Source: BERK, 2020; Lewiston Fire Department, 2015-2019; City of Lewiston, 2020; LCVMP, 2020.

Exhibit 15. 2034 Projected EMS Incidents per Square Mile



Source: BERK, 2020; Lewiston Fire Department, 2015-2019; City of Lewiston, 2020; LCVMP, 2020.

Exhibit 16. 2017 to 2034 EMS Incident Growth per Square Mile



Source: BERK, 2020; Lewiston Fire Department, 2015-2019; City of Lewiston, 2020; LCVMP, 2020.

Model Alternative Station Location Scenarios

The goal of this part of the analysis is to choose the optimal location(s) for station relocation(s) by using current incident locations and future incident projections. This analysis relies on an ArcGIS for Desktop tool called Location-Allocation within the Network Analyst extension. This core of this tool is building a transportation and response-to-demand model to solve for station locations that include the greatest amount of demand served within an impedance cutoff. The impedance measure is travel time, and in all scenarios below, we use an 8-minute cutoff for travel time.

The Lewiston transportation network is the primary input for the travel time modeling. We use transportation network attributes including speed limits, road segment length, and one-way restrictions to determine travel time calculations. We also incorporate inferred intersection attributes such as turn delays into the analysis.

All current incident locations as well as future incident projections make up the demand portion of each scenario. Once the transportation model is built out, the scenarios are solved based on how well potential locations serve projected incident demand, with the goal of maximizing the 8-minute response time to as many incidents as possible. This methodology is consistent with methods commonly used for fire station location analyses elsewhere.

Scenarios

Three scenarios were discussed by the project team and modeled:

- **Scenario 1 – Relocate Station 4 to Bryden Ave and 5th St Property:** Do not move Stations 1 and 2. Model the city-owned Bryden Ave and 5th St property as the replacement location for Station 4. See Exhibit 19.
- **Scenario 2 – Relocate Station 4 (unconstrained):** Do not move Stations 1 and 2. Let the model choose the optimal relocation site for Station 4. See Exhibit 20.
- **Scenario 3 – Relocate Stations 1 and 4 (unconstrained):** Do not move Station 2 and let the model choose the optimal relocation sites for Stations 1 and 4. Initially, BERK designed two separate scenarios for relocations these stations: one in which Station 4 is located first, then Station 1 is located; and another in which the two station locations are chosen simultaneously. These model runs yielded the same result, and thus were combined into a single scenario for presentation here. See Exhibit 21.

M73 and Asotin County Station

Currently, the Lewiston Fire Department EMS vehicle (M73) is stationed at the Asotin County Fire Station on Appleside Boulevard south of Clarkston, WA. While this resource is available to support EMS calls in both Clarkston and Lewiston, it complicates the modelling, which is otherwise configured to plan for stations that serve both EMS and fire. In addition, transportation data with the necessary attributes for travel time modeling was unavailable for Asotin County and the City of Clarkston, which would prevent M73 from being accurately modeled in response time scenarios.

As a result, BERK prioritized serving both fire and EMS with a given station location, knowing that for EMS, M73 in Asotin County will help with response times in the west part of Lewiston and the county club

area primarily. The project team discussed and agreed upon this in March 2020. Therefore, the scenarios do not include the Asotin County Fire Department location, and the model is restricted to station location selection based on response to incidents from a constellation of three primary stations in Lewiston.

Transportation Network and Future High Growth Areas

One limitation with projecting travel times in areas identified as high growth areas is that many of those areas are on the outskirts of the city where no transportation network exists currently. For those areas, it was assumed that as roads are built out, the transportation network will be designed in such a way to allow for at least 25 MPH speeds throughout and in a somewhat grid-like configuration. While in certain areas this may be a conservative estimate, in other areas it may be too high due to local speed limits or road configuration. In the end, this was determined to be a reasonable middle ground assumption.

Two specific transportation improvements were agreed upon by the project team to include in modeling, shown and highlighted in the maps below as “Potential Future Roads”.

Scenario Evaluation

For each scenario, the model calculated travel times from all possible station locations to future incidents, then identified station locations based on allocating future incidents to the station location which minimized travel time to the given incident. The location selection process was unrestricted, meaning the model could choose any location within the study area for a station.

For Scenario 1 (Bryden and 5th), no new station locations were selected; instead the model tested the proposed relocation site against future incidents and the future transportation network.

In scenarios 2 and 3, the model selected locations based on maximizing the number of projected incidents that fall within an 8-minute travel time from a potential station location. If multiple potential station locations are able to reach the projected incident location within 8 minutes, the model allocates the incident to the station which can reach the incident location in the least amount of time. This is an important distinction between basing the analysis solely on minimizing response times. While a greater number of projected incidents may be reached in one or two minutes by basing the analysis solely on response time, that would favor the core area and create more issues for serving the outer areas of the city where much of the future growth will be concentrated.

Therefore, the scenario modeling for Scenarios 2 and 3 identifies station locations that maximize the number of future incidents within an 8-minute travel time from the identified station location (see Exhibit 20 and Exhibit 21).

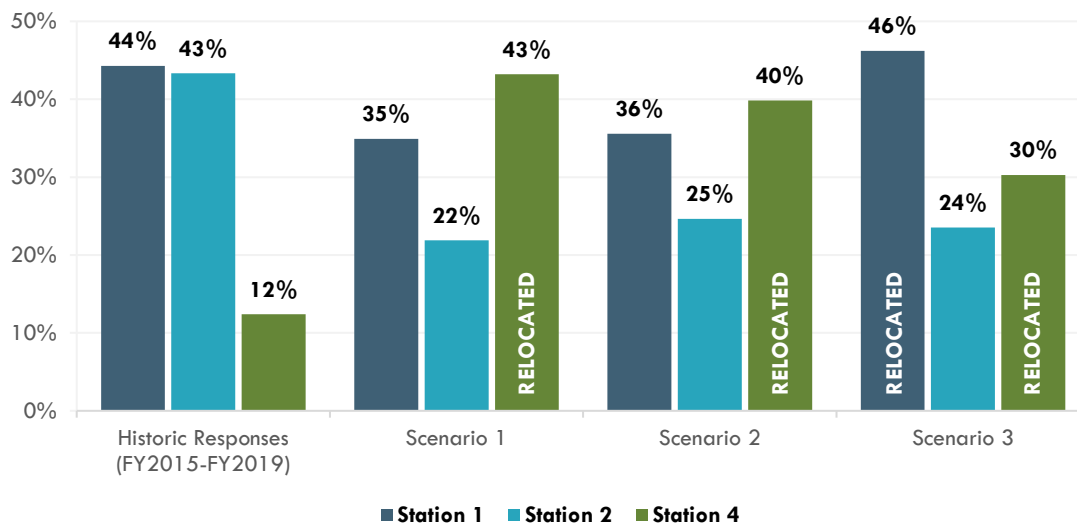
Distribution of Incident Response by Station

The model used to determine which station responds to each projected future incident location assumes each station has unlimited capacity to respond to incidents. Of course, this is not always the case. Our analysis of historic incident response data from FY2015 to FY2019 indicates that Stations 1 and 2 responded to 88% of all incidents, while Station 4 responded to just 12% of incidents. This may be due to their closer proximity to incident locations. However, station capacity likely also played a role.

Exhibit 17 compares the actual distribution of incident responses by station found in our historic data analysis to the allocated distribution of incidents by station in the modeled scenarios. It shows an optimal

incident response system would see Station 4 responding to a significantly greater proportion of total incidents and Station 2 responding to a significantly lesser proportion.

Exhibit 17. Share of Incident Response by Station, Historic Performance vs Modeled Scenarios



Source: Lewiston Fire Department, 2015-2019; BERK, 2020.

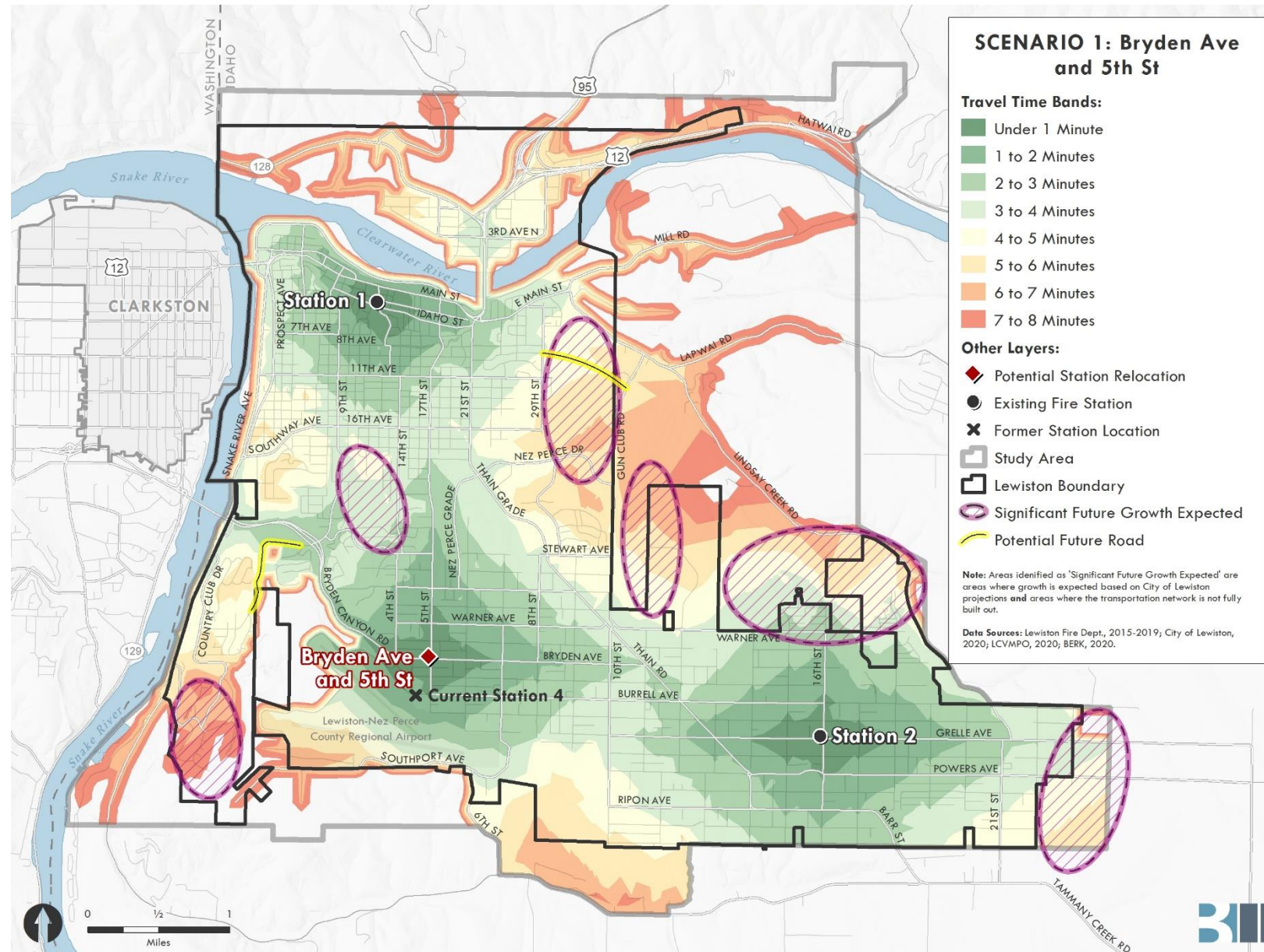
Station capacity is being addressed separately in this study. These findings indicate that station capacity will need to be a key criterion when deciding to relocate or rebuild a station. Exhibit 18 shows total historic incident response data from FY2015 to FY2019 compared to total incidents in our modeled scenarios, broken down by station. The scenarios below show total incidents for five projected years of incident data.

Exhibit 18. Total Incident Response by Station, Historic Performance vs Modeled Scenarios

	HISTORIC RESPONSES (FY2015-FY2019)	SCENARIO 1	SCENARIO 2	SCENARIO 3
Station 1	10,676	10,186	10,186	13,477
Station 2	10,453	6,380	6,380	6,864
Station 4	2,990	12,609	12,609	8,834

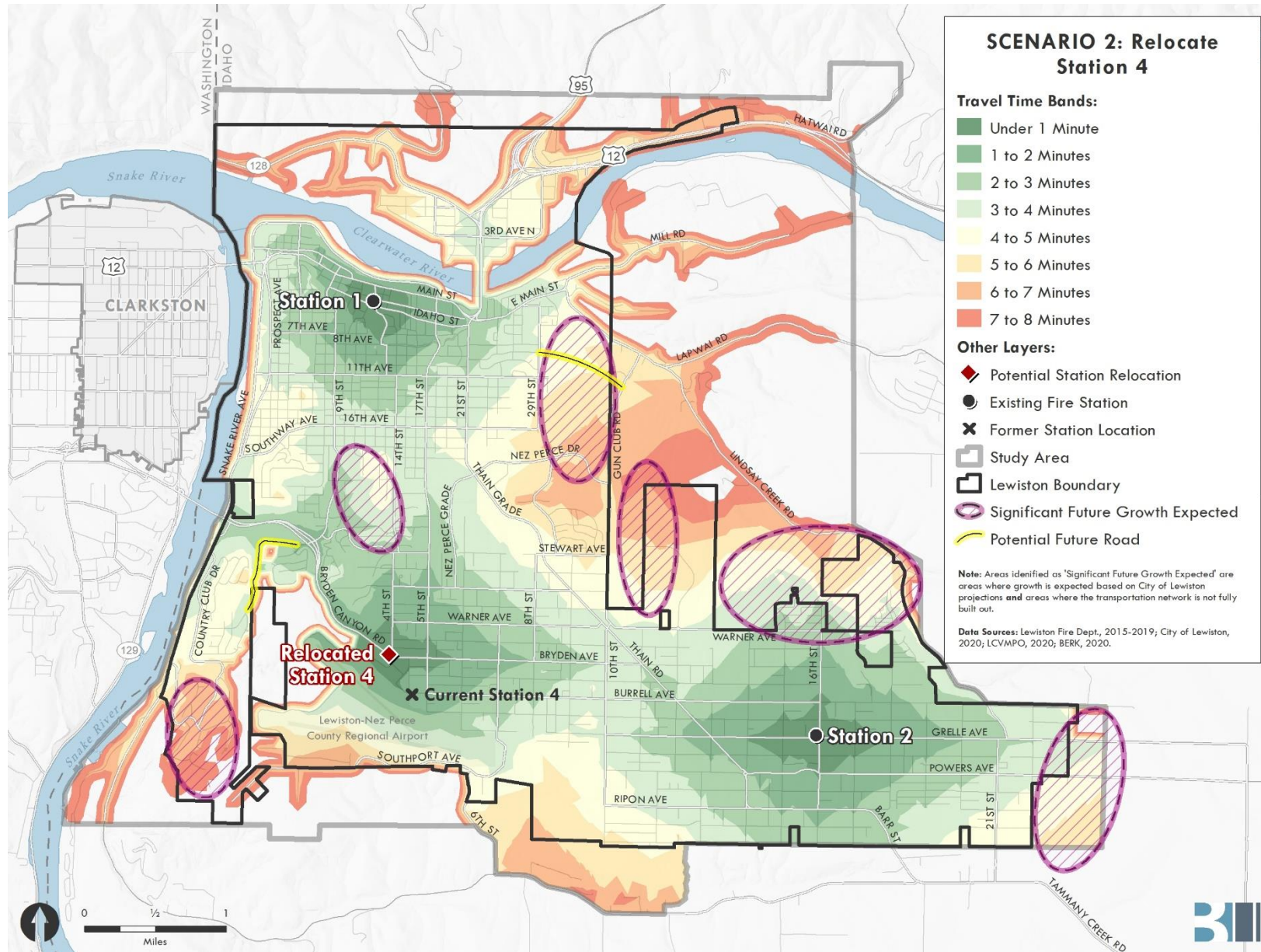
Source: Lewiston Fire Department, 2015-2019; BERK, 2020.

Exhibit 19. Scenario One – Relocate Station 4 to Bryden Ave and 5th Street Property



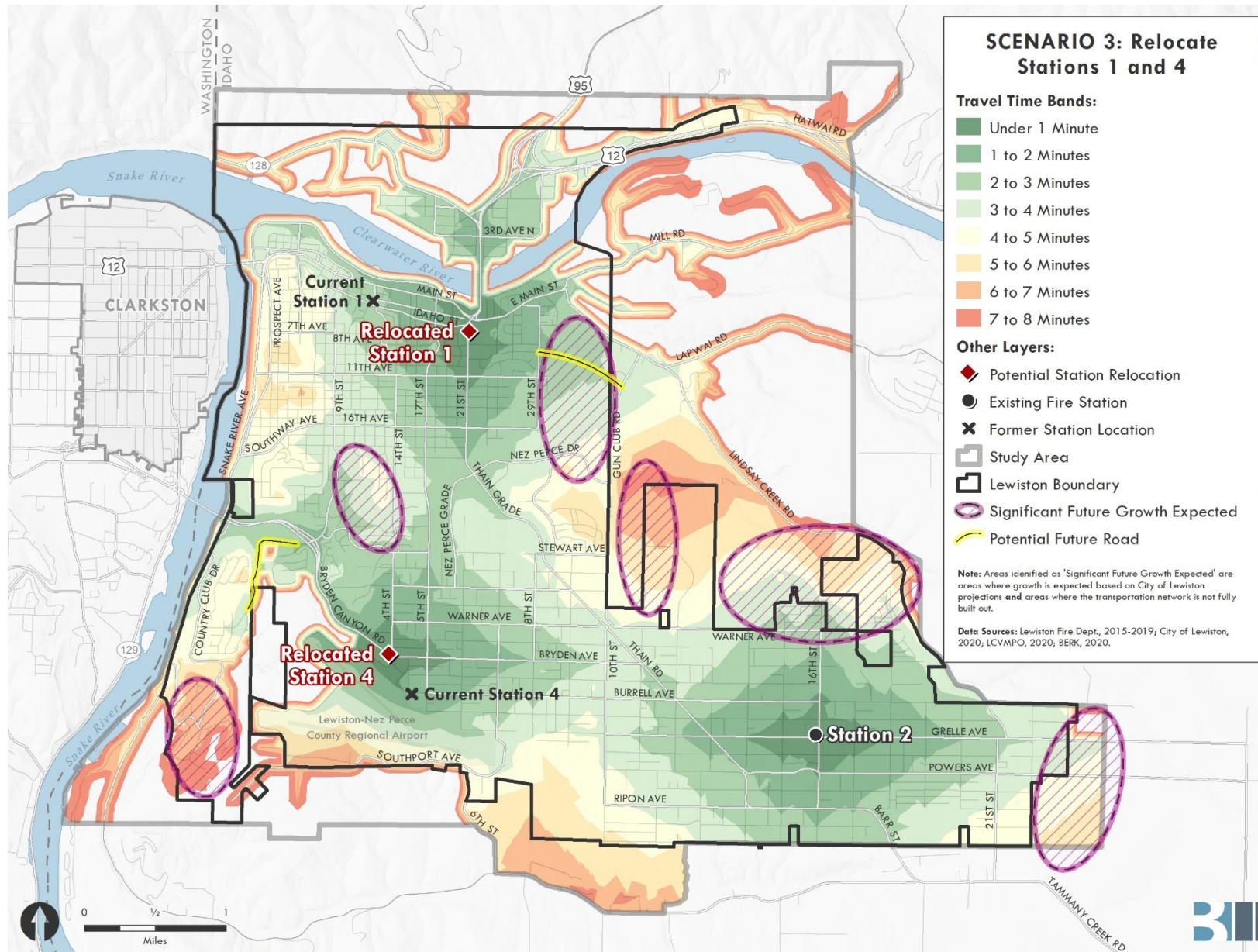
Source: BERK, 2020; Lewiston Fire Department, 2015-2019; City of Lewiston, 2020; LCVMP, 2020.

Exhibit 20. Scenario Two – Relocate Station 4 (unconstrained)



Source: BERK, 2020; Lewiston Fire Department, 2015-2019; City of Lewiston, 2020; LCVMP, 2020.

Exhibit 21. Scenario Three – Relocate Stations 1 and 4 (unconstrained)



Source: BERK, 2020; Lewiston Fire Department, 2015-2019; City of Lewiston, 2020; LCVMP, 2020

Recommendations

Based on population and housing unit growth, projected incidents, and future modeling of incident response, **Scenario 3** is the best three-station alternative to accommodate the City of Lewiston. Our analysis indicates that relocating both Stations 1 and 4 will provide superior service for areas of future growth and maximize the percentage of responses in the Study Area that are within the 8-minute standard.

If the City of Lewiston chooses only to replace and relocate Station 4, it would still have a significant impact on its ability to serve a greater number of future incidents within an 8-minute drive time.³

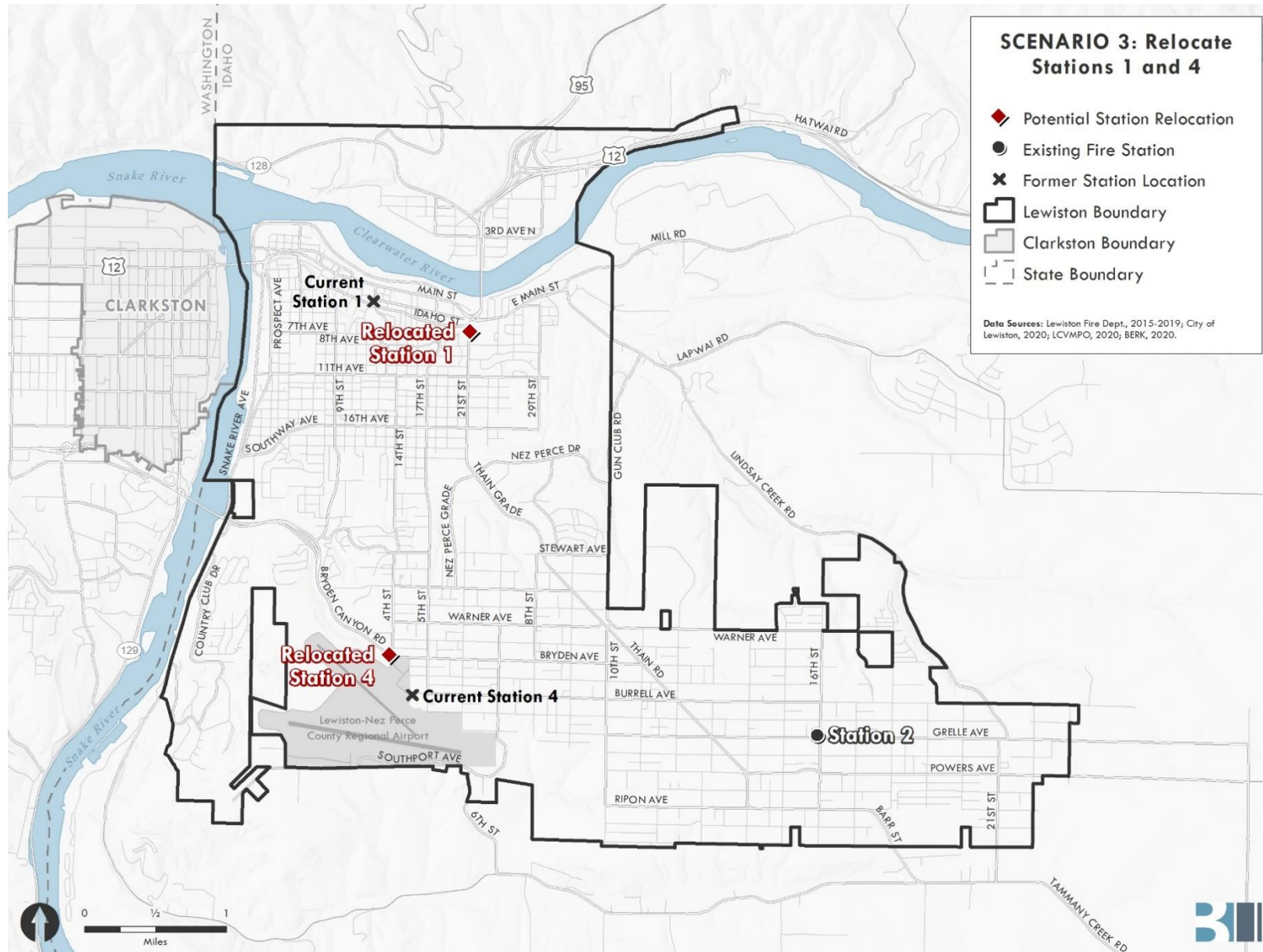
Below are the recommended station relocation sites, also shown in the map in Exhibit 22:

- **Recommended Station 1 Relocation:** General vicinity of 21st St between 7th and 8th Ave (no further east than 21st St.)
- **Recommended Station 4 Relocation:** General vicinity of Bryden Ave and 4th St

Our modeling identified these locations with an assumption of ideal traffic conditions and readily available sites for station development. There are other factors considered when relocating a fire station. Land availability is perhaps the largest factor. If the City were to restrict relocation to land currently owned by the City of Lewiston, **Bryden Ave and 5th St** would be a strong candidate for relocating Station 4, given its similar performance to the relocation site selected above at Bryden Ave and 4th St.

³ Additionally, our analysis indicates that expanding the capacity of Station 4 for incident response may free up the other two stations and improve response times in other parts of the Study Area. However additional operational analysis would be needed to confirm this.

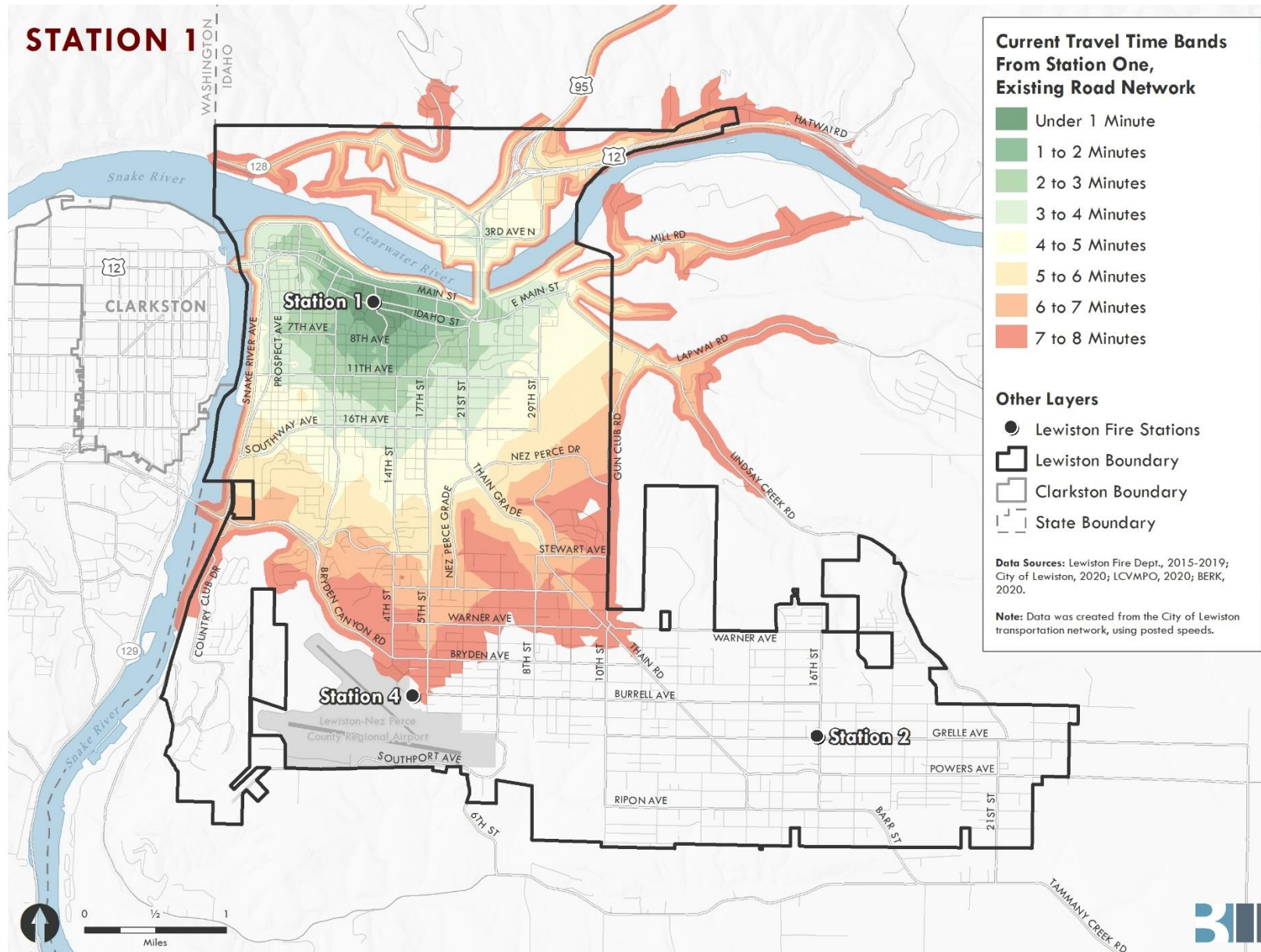
Exhibit 22. Recommended Station Locations – Modeling Scenario Three



Source: BERK, 2020; Lewiston Fire Department, 2015-2019; City of Lewiston, 2020; LCVMP, 2020.

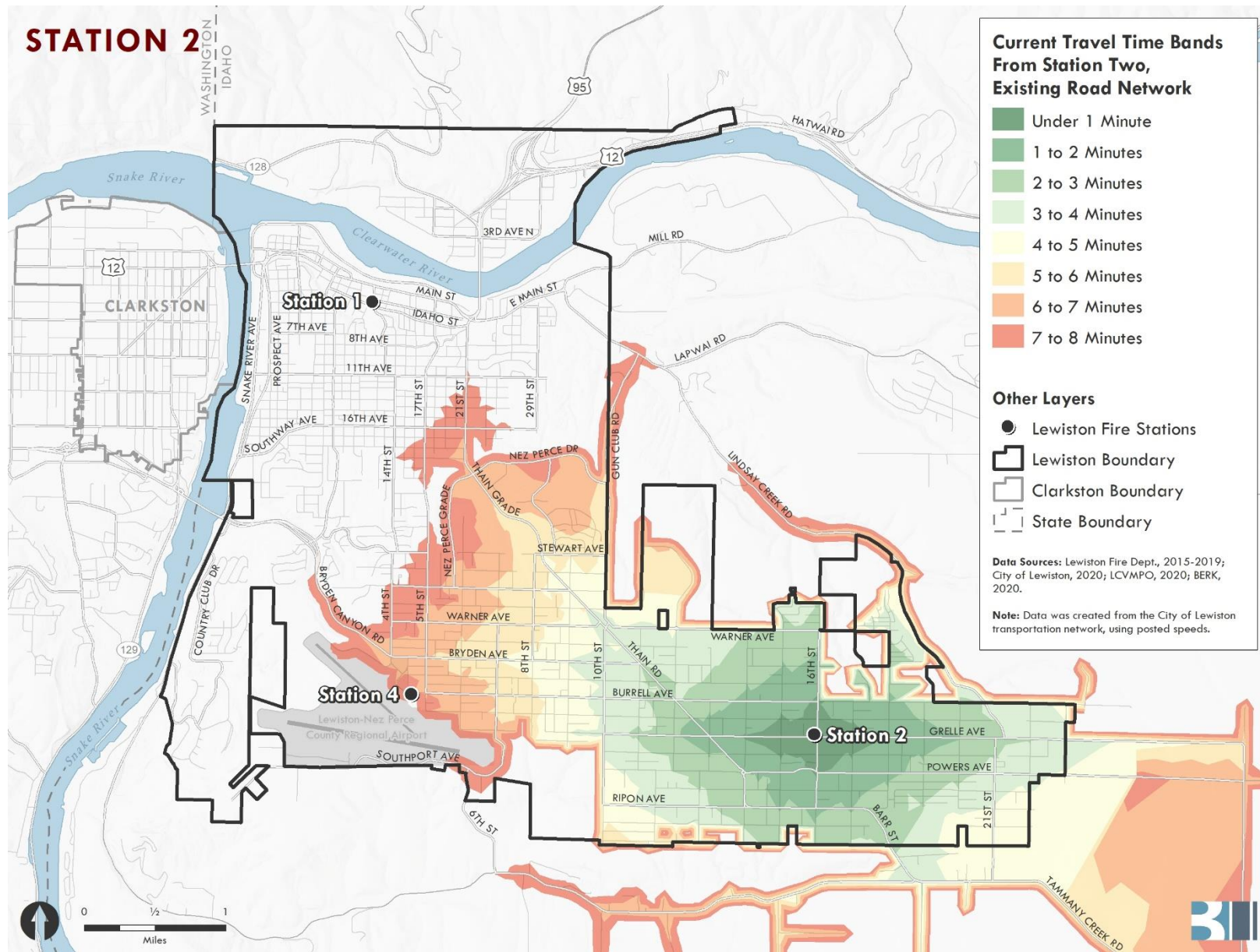
Appendix A: Current Travel Time Mapping by Station

Exhibit 23. Station One – Current Travel Time



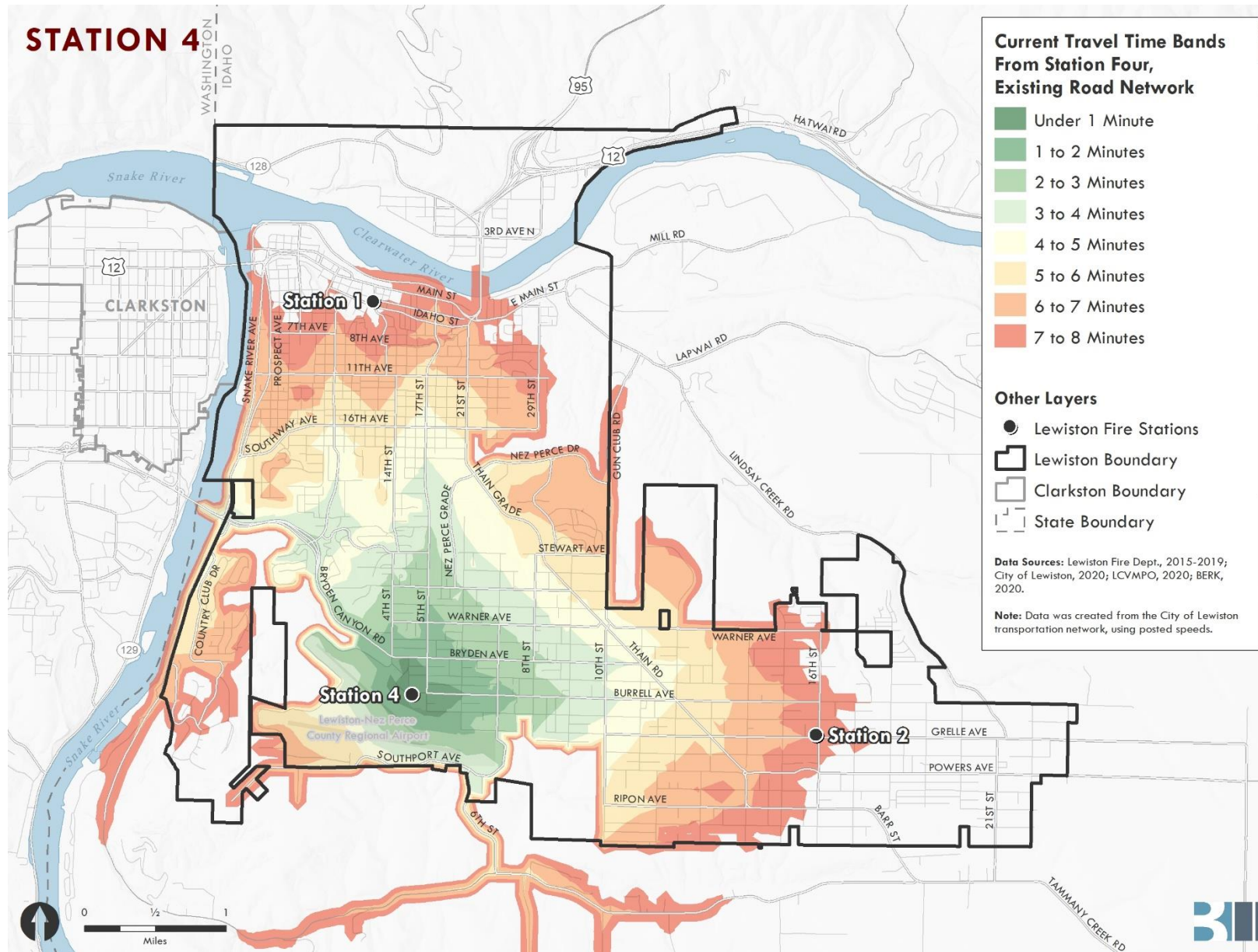
Source: BERK, 2020; City of Lewiston, 2020.

Exhibit 24. Station Two – Current Travel Time



Source: BERK, 2020; City of Lewiston, 2020.

Exhibit 25. Station Four – Current Travel Time



Source: BERK, 2020; City of Lewiston, 2020.